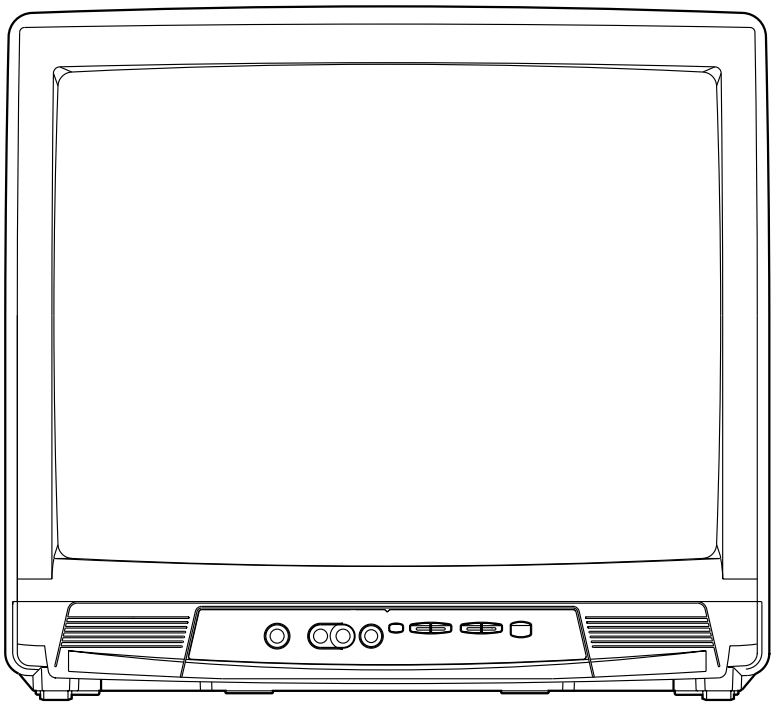
Emerson®

SERVICE MANUAL

19” COLOR TELEVISION

EWT19S2



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IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all Funai Equipment. The service procedures recommended by Funai and described in this service manual are effective methods of performing service operations. Some of these service special tools should be used when and as recommended.

It is important to note that this service manual contains various CAUTIONS and NOTICES which should be carefully read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. Funai could not possibly know, evaluate and advice the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, Funai has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by Funai must first use all precautions thoroughly so that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

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SPECIFICATIONS

<TUNER>

ANT. Input ---------- 75ohm Unbal., F type
Reference Level ---------- 20Vp-p (CRT Green Cathode)
Test Input Signal ---------- 400Hz 30% modulation

Description	Condition	Unit	Nominal	Limit
1. Intermediate Freq.	Picture Sound	MHz MHz	45.75 41.25	– –
2. Peak Picture Sens	VHF CATV UHF	dBμv dBμv dBμv	15 15 15	30 30 40
3. AFT Pull In Range (10mV input)	–	MHz	±2.0	±0.7

<DEFLECTION>

Description	Condition	Unit	Nominal	Limit
1. Deflection Freq.	Horizontal Vertical	KHz Hz	15.734 60	– –
2. Linearity	Horizontal Vertical	% %	– –	±15 ±10
3. Over Scan	–	%	10	–
4. High Voltage	–	KV	26	–

<VIDEO & CHROMA>

Description	Condition	Unit	Nominal	Limit
1. Misconvergence	Center Side Corner	mm mm mm	– – –	0.4 1.5 2.1
2. Brightness	APL 100%	Ft-L	40	25
3. Color Temperature	–	°K	9200°K	–
4. Resolution	Horizontal Vertical	Line Line	250 300	– –

<AUDIO>

All items are measured across 8Ω load at speaker output terminal.

Description	Condition	Unit	Nominal	Limit
1. Audio Output Power	10% THD	W	1	0.8
2. Audio Distortion (w/LPF)	500mW	%	2	7
3. Audio Freq. Response	-3dB	Hz	100~11K	–

Note:

Nominal specifications represent the design specifications. All units should be able to approximate these. Some will exceed and some may drop slightly below these specifications. Limit specifications represent the absolute worst condition that still might be considered acceptable. In no case should a unit fail to meet limit specifications.

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IMPORTANT SAFETY PRECAUTIONS

Prior to shipment from the factory, our products are strictly inspected for recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Safety Precautions for TV Circuit

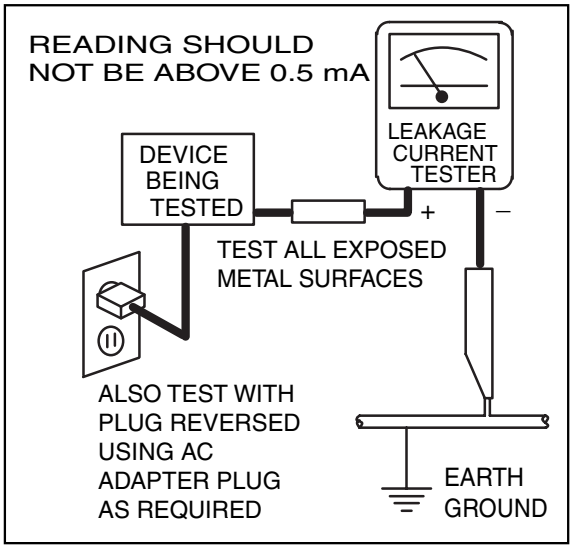
1. **Before returning an instrument to the customer,** always make a safety check of the entire instrument, including, but not limited to, the following items:

a. Be sure that no built-in protective devices are defective and have been defeated during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**

b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to, (1) spacing between the picture tube and the cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.

c. **Antenna Cold Check -** With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohm or greater than 5.2 megohm, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.

d. **Leakage Current Hot Check -** With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isolation transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.1 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal water pipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle brackets, metal cabinet, screw heads, metallic overlays, control shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.5 milli-ampere. Reverse the instrument power cord plug in the outlet and repeat the test.



ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

e. **X-Radiation and High Voltage Limits -** Because the picture tube is the primary potential source of X-radiation in solid-state TV receivers, it is specially constructed to prohibit X-radiation emissions. For continued X-radiation protection, the replacement picture tube must be the same type as the original. Also, because the picture tube shields and mounting hardware perform an X-radiation protection function, they must be correctly in place. High voltage must be measured each time servic-

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ing is performed that involves B+, horizontal deflection or high voltage. Correct operation of the X-radiation protection circuits also must be reconfirmed each time they are serviced. (X-radiation protection circuits also may be called "horizontal disable" or "hold down.") Read and apply the high voltage limits and, if the chassis is so equipped, the X-radiation protection circuit specifications given on instrument labels and in the Product Safety & X-Radiation Warning note on the service data chassis schematic. High voltage is maintained within specified limits by close tolerance safety-related components/adjustments in the high-voltage circuit. If high voltage exceeds specified limits, check each component specified on the chassis schematic and take corrective action.

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning -** Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including, but not limited to circuit modifications and the addition of items such as auxiliary audio and/or video output connections, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions will void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning -** The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck. Some "in-line" picture tubes are equipped with a permanently attached deflection yoke; because of potential hazard, do not try to remove such "permanently attached" yokes from the picture tube.

5. **Hot Chassis Warning -**

a. Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and maybe safety-serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter, measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground.

b. Some TV receiver chassis normally have 85V AC(RMS) between chassis and earth ground regardless of the AC plug polarity. This chassis can be safety-serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection.

c. Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulation material that must not be defeated or altered.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas:a. near sharp edges,b. near thermally hot parts-be sure that leads and components do not touch thermally hot parts,c. the AC supply,d. high voltage, and,e. antenna wiring. Always inspect in all areas for pinched, out of place, or frayed wiring. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **Product Safety Notice -** Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc.. Parts that have special safety characteristics are identified by a (⚠) on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The product's safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are strictly inspected to confirm they comply with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

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Precautions during Servicing

A. Parts identified by the (⚠) symbol are critical for safety.
Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.

Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1) Wires covered with PVC tubing
2) Double insulated wires
3) High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1) Insulation Tape
2) PVC tubing
3) Spacers
4) Insulators for transistors.

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

G. Check that replaced wires do not contact sharp edged or pointed parts.

H. When a power cord has been replaced, check that 5~6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector

The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure

1) Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not re-use a connector (discard it).
2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.
3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.
4) Use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC supply outlet.

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Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions. Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Region	Clearance Distance (d) (d')
110 to 130 V	USA or CANADA	≥ 3.2 mm (0.126 inches)

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

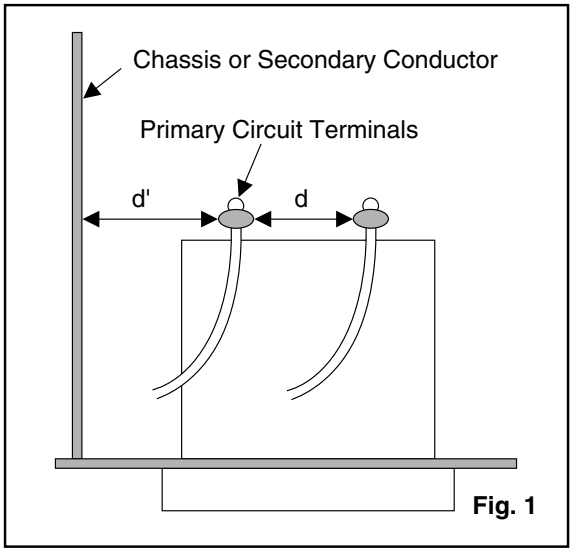

Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method : (Power ON)

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See Fig. 2 and following table.

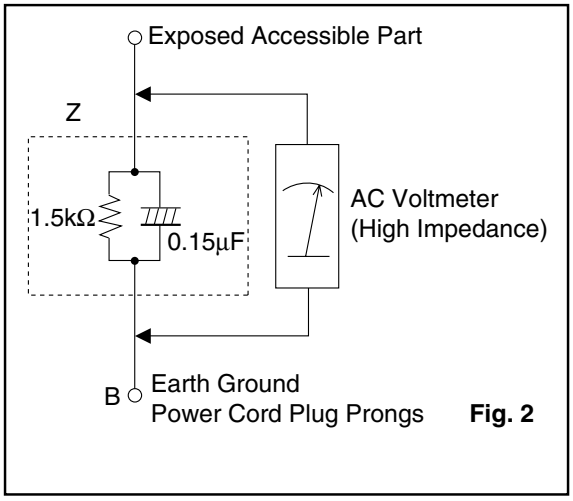

Fig. 2

Table 2 : Leakage current ratings for selected areas

AC Line Voltage	Region	Load Z	Leakage Current (i)	Earth Ground (B) to:
110 to 130 V	USA	0.15µF CAP. & 1.5kΩ RES. connected in parallel	i≤0.5mA rms	Exposed accessible parts

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

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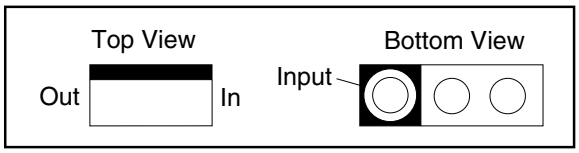
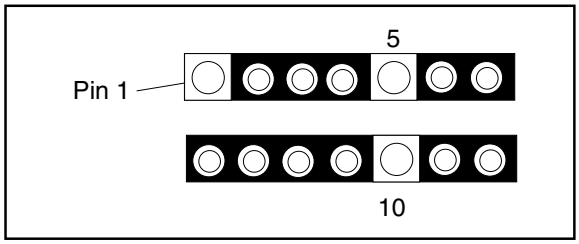
STANDARD NOTES FOR SERVICING

Circuit Board Indications

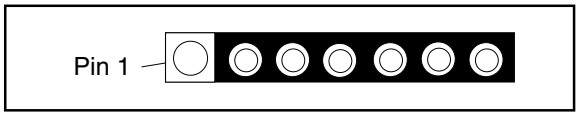
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.



c. The 1st pin of every male connector is indicated as shown.



How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:

(1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

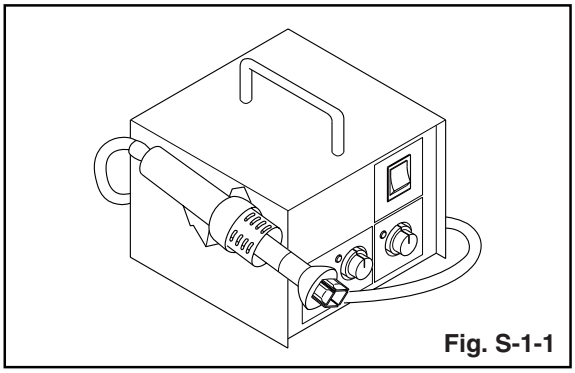


Fig. S-1-1

(2) Remove the flat pack-IC with tweezers while applying the hot air.

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)
2. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

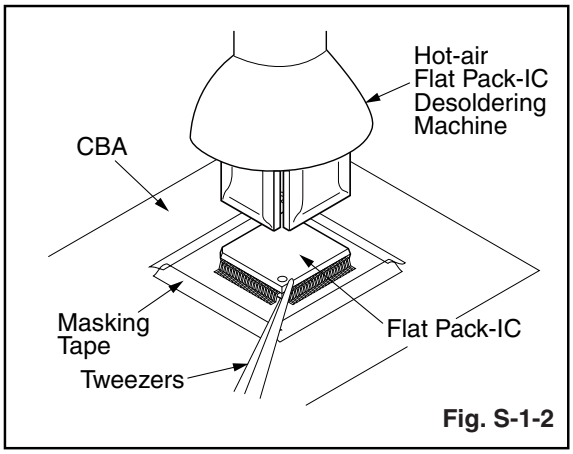


Fig. S-1-2

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With Soldering Iron:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

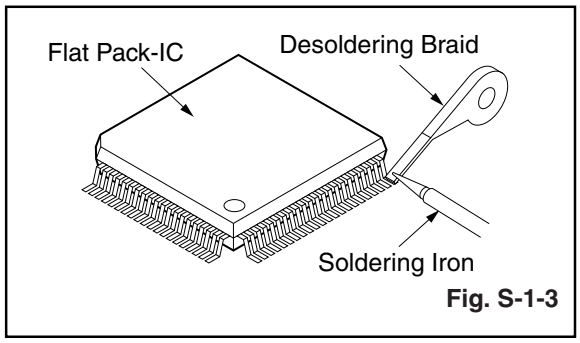

Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine.(Fig. S-1-4)

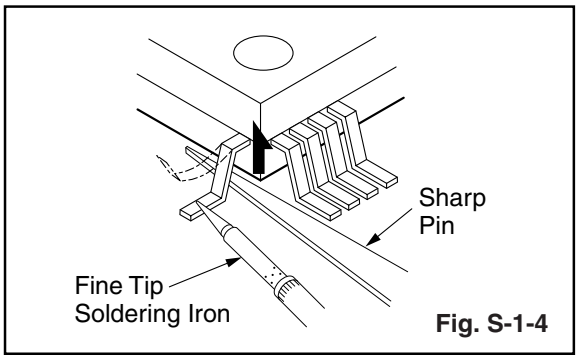

Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

(2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

(3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5.

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

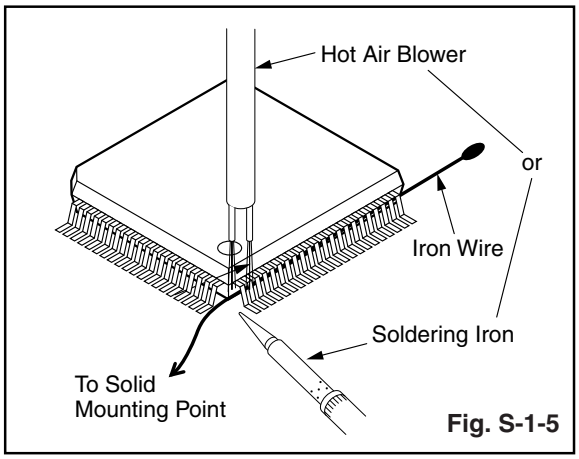

Fig. S-1-5

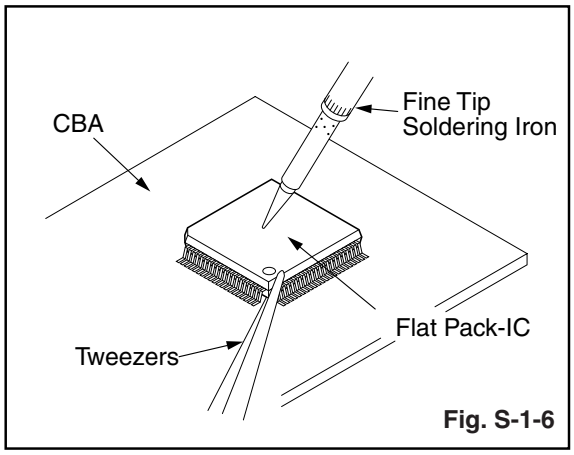

Fig. S-1-6

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2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The "●" mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then pre- solder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

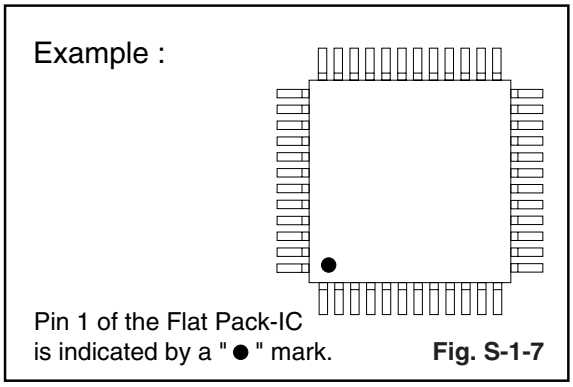


Fig. S-1-7

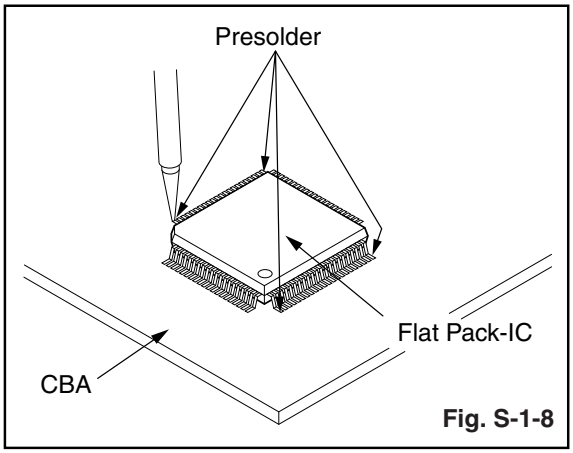


Fig. S-1-8

Instructions for Handling Semiconductors

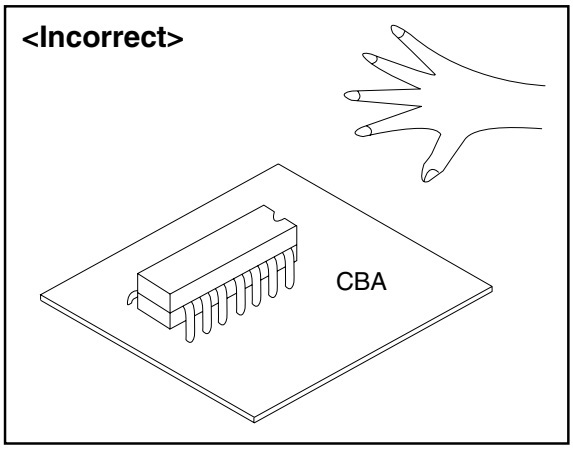
Electrostatic breakdown of the semiconductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

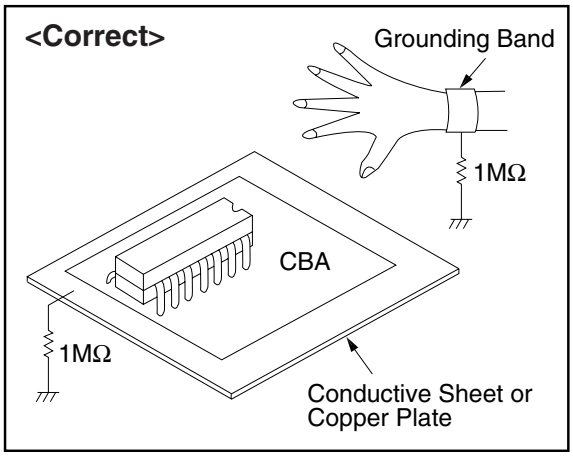
1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semiconductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semiconductors with your clothing.





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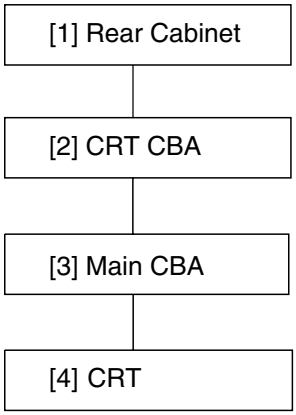
CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps for the cabinet parts, and the CBA in order to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route and dress the cables as they were.

Caution !

When removing the CRT, be sure to discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.



2. Disassembly Method

Step/ Loc. No.	Part	Removal		
		Fig. No	Remove/*unlock/ release/unplug/ unclamp/desolder	Note
[1]	Rear Cabinet	1,2	5(S-1), (S-3)	1
[2]	CRT CBA	4,5	CN501	2
[3]	Main CBA	3,5	CN571	3
[4]	CRT	4	4(S-2), Anode Cap	4
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)

Note :

(1) Order of steps in procedure. When reassembling, follow the steps in reverse order.These numbers are also used as the Identification (location) No. of parts in figures.

(2) Parts to be removed or installed.

(3) Fig. No. showing procedure of part location

(4) Identification of part to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.

S=Screw, P=Spring, L=Locking Tab, CN=Connector, *=Unhook, Unlock, Release, Unplug, or Desolder

2(S-2) = two screws (S-2)

(5) Refer to the following Reference Notes in the Table.

Reference Notes in the Table

1. Removal of the Rear Cabinet. Remove screws 5(S-1) and (S-3) then slide the Rear Cabinet backward.
2. Removal of the CRT CBA. Disconnect CN501 then pull the CRT CBA backward.
3. Removal of the Main CBA. Disconnect CN571 on the Main CBA then slide the Main CBA backward.

Caution !

Discharge the Anode Lead of the CRT with the CRT Ground Wire before removing the Anode Cap.

4. Removal of the CRT. Remove screws 4(S-2) and Anode Cap, then slide the CRT backward.

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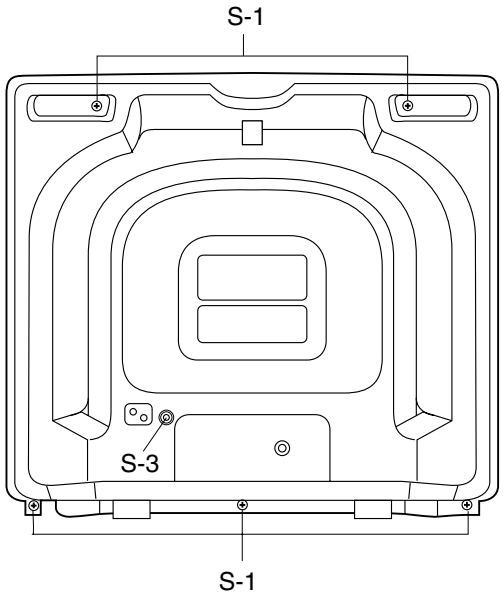

[1] Rear Cabinet

Fig. 1

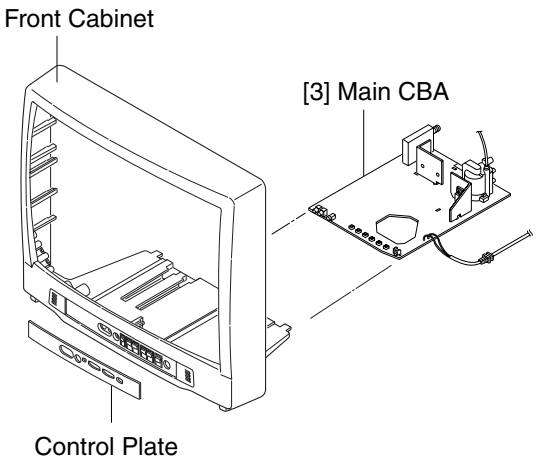

Fig. 3

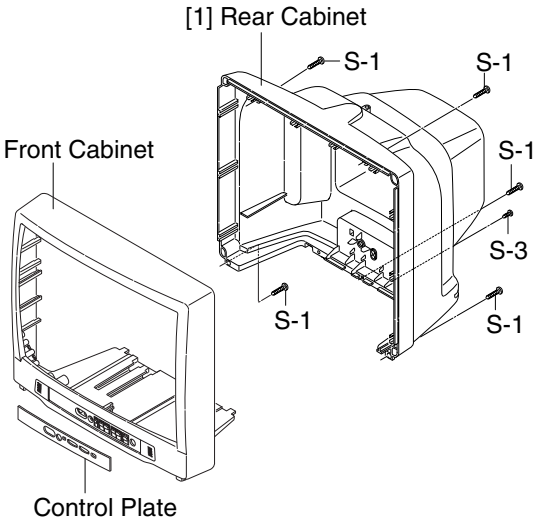

Fig. 2

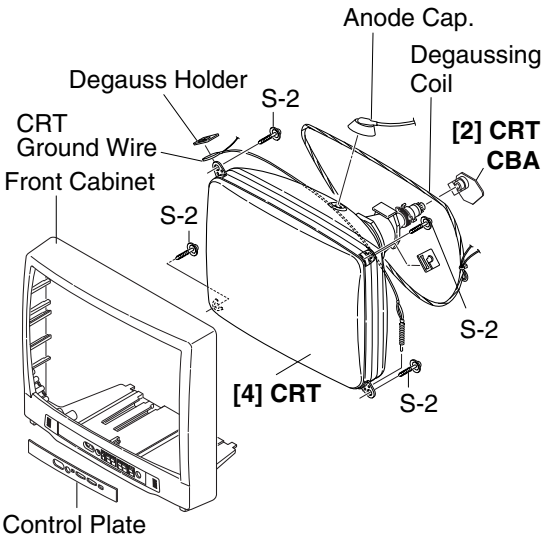

Fig. 4

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TV Cable Wiring Diagram

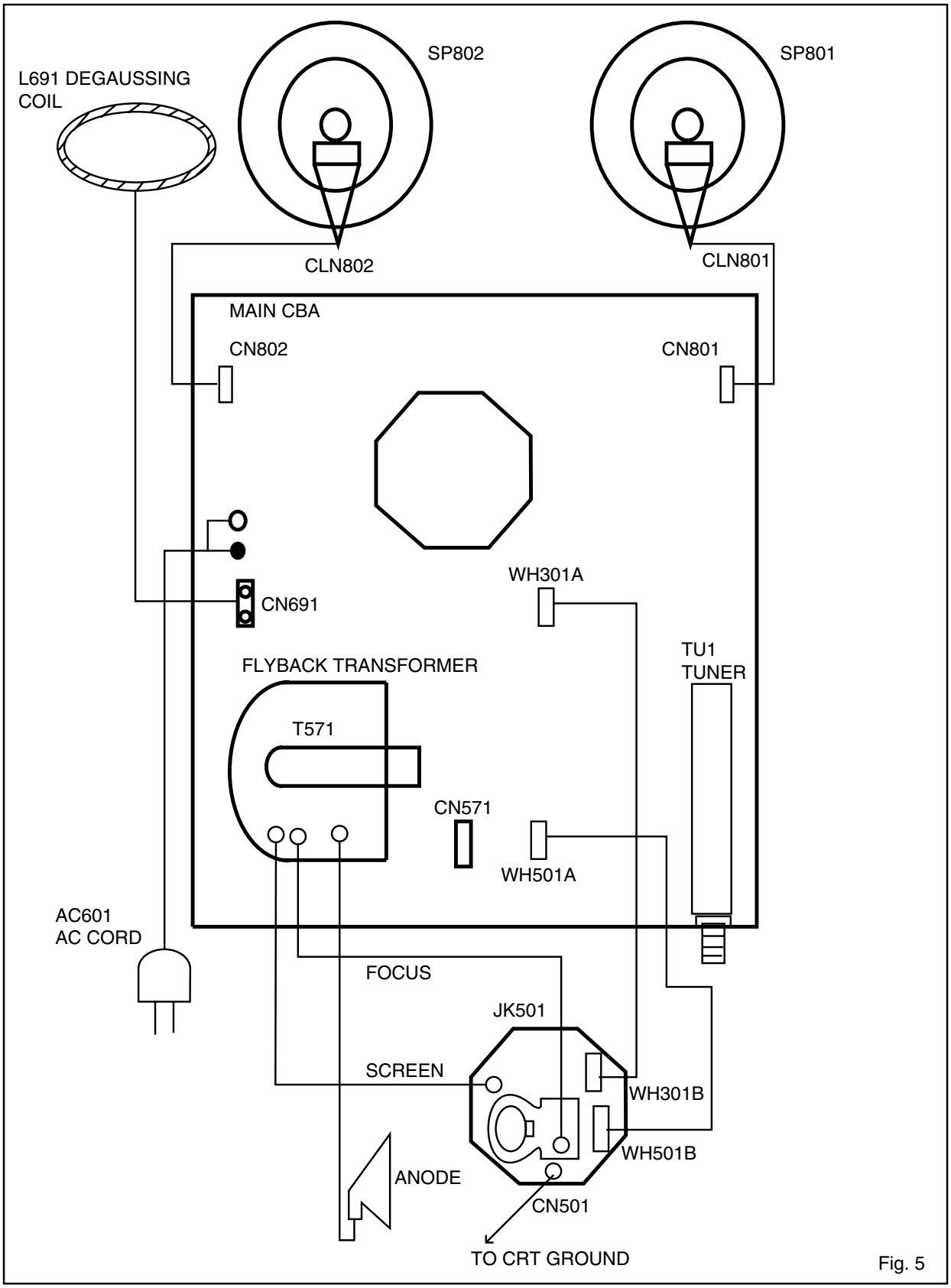

Fig. 5

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ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note:
"CBA" is abbreviation for "Circuit Board Assembly."

NOTE:

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed.
Also, do not attempt these adjustments unless the proper equipment is available.

Test Equipment Required

1. NTSC Pattern Generator (Color Bar W/White Window, Red Color, Dot Pattern, Gray Scale, Monoscope, Multi-Burst)
2. DC Voltmeter
3. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range:0.001~50V/Div,
   F-Range:DC~AC-60MHz
4. Plastic Tip Driver
5. Remote control unit: Part No. N0121UD or N0134UD
6. DC power supply 13.2V/5A

How to make Service remote control unit:

1. Prepare normal remote control unit. (Part No. N0121UD or N0134UD) Remove 3 Screws from the back lid. (Fig. 1-1)
2. Add J1 (Jumper Wire) to the remote control CBA. (Fig. 1-2)

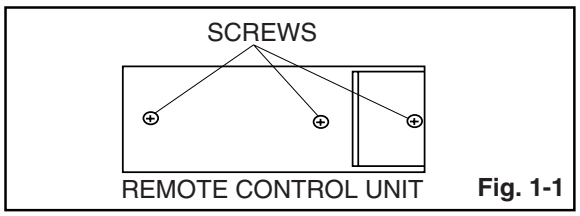

Fig. 1-1

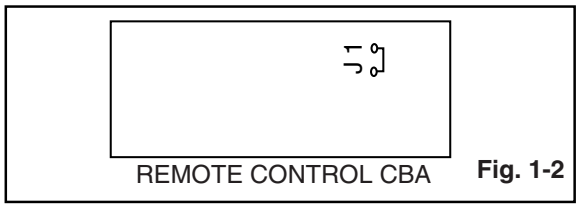

Fig. 1-2

How to set up the service mode:

Service mode:

1. Use the Service remote control unit.
2. Turn the power on. (Use main power on the TV unit.)
3. Press "SLEEP" button on the Service remote control unit. Version of micro computer will display on the CRT. (Ex: 200-0.07 or 054-0.13)
4. Then CPU version is 054-0.13: Check the display on the lower left is "00" and if it is not "00," set it at "00" according to "3-1 FRENCH, ACCESS CODE, VIDEO TONE."

   When CPU version is 200-0.07: Confirm that the character of U (U.S.A. model) is indicated on the bottom left of the CRT. If the character of C (CANADA model) is indicated, perform "3-1 Setting for FRENCH Data Values."

1. DC 114V Adjustment

Purpose: To obtain correct operation.

Symptom of Misadjustment: The picture is dark and the unit does not operate correctly.

Test Point	Adj. Point	Mode	Input
TP601 TP300 (GND)	VR661	---	---
Tape	**M. EQ.**	**Spec.**	
---	DC Voltmeter	+114±0.5V DC.	

Note: TP601, TP300(GND), VR661 --- Main CBA

1. Connect DC Volt Meter to TP601 and TP300(GND).
2. Adjust VR661 so that the voltage of TP601 becomes +114±0.5V DC.

2. Black Stretch Control Adjustment

Purpose: To show the fine black color.

Symptom of Misadjustment: Black color will not appear correctly.

Note: Use Service remote control unit.

1. Enter the Service mode. (See page 5-1)
2. Press "6" button on the Service remote control unit. "B-S" is indicated.
3. Press "CH ▲ / ▼" buttons on the Service remote control unit so that display will change "OFF," "0," "1," "2" and "3." Then choose "B-S OFF."
4. Press "6" button on the Service remote control unit. "B-S*2" is indicated.
5. Press "CH ▲ / ▼" buttons on the Service remote control unit so that display will change " 0," "1." "2" and "3." Then choose "B-S*2 0."
6. Turn the power off and on again, using the main power button on the TV unit.

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3-1. Setting for 7F and FRENCH Data Values

General

1. Enter the Service mode. (See page 5-1)
2. Press "VOL ▼" button on the Service remote control unit. Display changes "C/D," "VCO," "7F," "FRENCH," "ACCESS CODE," "STEREO," "VIDEO TONE," "FM-MODE" and "AV-OUT" cyclically when "VOL ▼" button is pressed.

7F

1. Press "VOL ▼" button on the Service remote control unit. Then select 7F display.
2. Press "CH ▲ / ▼" buttons on the Service remote control unit. Then choose 7F=FF.

FRENCH

1. Press "VOL ▼" button on the Service remote control unit. Then select FRENCH display.
2. Press "CH ▲ / ▼" buttons on the Service remote control unit. Then choose FRENCH=OFF.

When CPU version is 053-0.10, perform the following settings:

ACCESS CODE ---- set to OFF
VIDEO TONE ---- set to OFF
FM-MODE ---- set to OFF
AV-OUT ---- set to OFF
STEREO ---- set to ON

Note: **C/D** and **VCO** data values do not need to be adjusted at this moment.

3-2. Setting for CONTRAST, COLOR, TINT, V-TINT and SHARP Data Values

General

1. Enter the Service mode. (See page 5-1)
2. Press "MENU" button on the Service remote control unit. Display changes "BRIGHT," "CONTRAST," "COLOR," "TINT," "V-TINT " and "SHARP " cyclically when "MENU" button is pressed.

CONTRAST (CNT)

1. Press "MENU" button on the Service remote control unit. Then select " CONTRAST " (CNT) display.
2. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the value of "CONTRAST" (CNT) becomes 78.

COLOR (CLR)

1. Press "MENU" button on the Service remote control unit. Then select "COLOR" (CLR) display.
2. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the value of "COLO " (CLR) becomes 58.

TINT (TNT)

1. Press "MENU" button on the Service remote control unit. Then select "TINT" (TNT) display.
2. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the value of "TINT" (TNT) becomes 60.

V-TINT (V-TNT)

1. Press "MENU" button on the Service remote control unit. Then select "V-TINT" (V-TNT) display.
2. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the value of "V-TINT" (V-TNT) becomes 62.

SHARP (SHARP)

1. Press "MENU" button on the Service remote control unit. Then select " SHARP " (SHARP) display.
2. Press "CH ▲ / ▼" buttons on the Service remote control unit and select "SHARP OFF."

Note: **BRIGHT** data value does not need to be adjusted at this moment.

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4. H f_o Adjustment

Purpose: To get correct horizontal frequency.

Symptom of Misadjustment: . If H f_0 adjustment is in correct, skew distortion will appear on the screen.

Test Point	Adj. Point	Mode	Input
R583	CH ▲ / ▼ button ["H-ADJ"] MODE	---	---
Tape	**M. EQ.**	**Spec.**	
---	Frequency Counter	15.734kHz±300Hz	

Note: R583 --- Main CBA
Use Service remote control unit.

1. Connect Frequency Counter to R583 and ground.
2. Set the unit to the VIDEO mode which is located before CH2 and no input is necessary. Enter the Service mode. (See Page 5-1)
3. Operate the unit for at least 20 minutes.
4. Press "2" button on the Service remote control unit and select H-ADJ Mode. (By pressing "2" button the display will change from TV AGC to H-ADJ.)
5. Press "CH ▲ / ▼" button on the Service remote control unit so that the display will change "0" ~ "7." At this moment, choose the display from "0" ~ "7" when the Frequency Counter is closest to 15.734 kHz±300Hz.
6. Turn the power off and on again, using the main power button on the TV unit.

5. VCO Adjustment

Purpose: To operate VCO correctly.

Symptom of Misadjustment: VCO does not work correctly and/or synchronization is faulty.

Note: Use Service remote control unit.

1. Disconnect the RF input and set the unit to Channel 4.
2. Enter the Service mode. (See Page 5-1)
3. Press "3" button on the Service remote control unit. The Auto VCO adjustment is started.
4. If the display color is changed from red to green, this adjustment is done.
5. Turn the power off and on again, using the main power button on the TV unit.

6. AGC Adjustment

Purpose: Set AGC (Auto Gain Control) Level.

Symptom of Misadjustment: AGC does not synchronize correctly when RF input level is too weak and picture distortion may occur if it is too strong.

Test Point	Adj. Point	Mode	Input
TP301	CH ▲ / ▼ buttons	RF	Color Bar 67.25MHz 60dBµV
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator DC Volt Meter	+2.5±0.1VDC or +2.8±0.1VDC or +2.7±0.1VDC by Tuner Type.	

Notes: TP301 --- Main CBA
Use Service remote control unit.

1. Enter the Service mode. (See Page 5-1) Then press number "2" button on the Service remote control unit.
2. Receive the Color Bar signal for channel 4 (67.25MHz). (RF Input Level: 60dBµV)
3. Press "CH ▲ / ▼" buttons so that the voltage of TP301 becomes +2.5±0.1V DC, if the tuner is used TEDH9-309A. (Tuner type number)
4. Press "CH ▲ / ▼" buttons so that the voltage of TP301 becomes +2.8±0.1V DC, if the tuner is used B8095AP. (Tuner type number)
5. Press "CH ▲ / ▼" buttons so that the voltage of TP301 becomes +2.7±0.1V DC, if the tuner is used ENV56DB3G3. (Tuner type number)
6. Turn the power off and on again, using the main power button on the TV unit.

7. Black Level Adjustment

Purpose: Set Black (Sub-bright) Level

Symptom of Misadjustment: If Sub-brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Note: TP300 (GND), D316 (Cathode) --- MAIN CBA

1. Enter the Service mode. (See page 5-1.)
2. Press "MENU" button on the Service remote control unit and select "BRT" mode. (Display changes "BRT," "CNT," "CLR" and "TNT" cyclically when MENU button is pressed.)
3. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the value of "BRT" becomes 128.
4. Turn the power off and on again, using the main power button on the TV unit.

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8. C-Trap Adjustment

Purpose: To get minimum leakage of the color signal carrier.

Symptom of Misadjustment: If C- Trap Adjustment is incorrect, stripes will appears on the screen.

Test Point	Adj. Point	Mode	Input
D316 (Cathode) (Blue) TP300 (GND)	CH ▲ / ▼ buttons	RF	Color Bar
Tape	**M. EQ.**	**Spec.**	
---	Oscilloscope	---	

Note: TP300 (GND), D316 (Cathode) --- MAIN CBA
Use Service remote control unit.

1. Connect Oscilloscope to D316 (Cathode) and TP300 (GND).
2. Enter the Service mode. (See page 5-1) Receive color bar signal from RF Input.
3. Press "0" button on the Service remote control unit and select C-TRP Mode.
4. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the display will change "0," "1," "2" and "3." Choose display "0," "1," "2" or " 3 " when B-Out (3.58MHz) value becomes minimum on the oscilloscope reading.
5. Turn the power off and on again, using the main power button on the TV unit.

9. V. Size Adjustment

Purpose: To obtain correct vertical height of screen image.

Symptom of Misadjustment: If V. Size is incorrect, vertical size of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Screen Control CH ▲ / ▼ buttons [V-S] Mode	RF	Mono scope
Tape	**M. EQ.**	**Spec.**	
---	Monoscope	90±5%	

Note: Use Service remote control unit.

1. Operate the unit for at least 20 minutes.
2. Enter the Service mode. (See page 5-1)
3. Receive the Monoscope Pattern.
4. Press "9" button on the Service remote control unit and select "V-S" mode. (Display changes "V-S" and "V-P" cyclically when "9" button is pressed.)
5. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the monoscope pattern becomes 90±5% of display size and the circle is round.
6. Turn the power off and on again, using the main power button on the TV unit.

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10. V. Position Adjustment

Purpose: To obtain correct vertical height of screen image.

Symptom of misadjustment: If V. Position is incorrect, vertical height of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Screen Control CH ▲ / ▼ buttons [V-P] Mode	RF	Mono scope
Tape	**M. EQ.**	**Spec.**	
---	Monoscope	90±5%	

Note: Use Service remote control unit

1. Operate the unit for at least 20 minutes.
2. Enter the Service mode. (See page 5-1)
3. Receive the Monoscope Pattern.
4. Press "9" button on the Service remote control unit and select "V-P" mode. (Display change "V-S" and "V-P" cyclically when "9" button is pressed.)
5. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the top and bottom of the monoscope pattern becomes equal to each other.
6. Turn the power off and on again, using the main power button on the TV unit.

11. H. Position Adjustment

Purpose: To obtain correct horizontal position of screen image.

Symptom of Misadjustment: If H. Position is incorrect, horizontal position of image on the screen may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Screen Control CH ▲ / ▼ buttons [H-P] Mode	RF	Mono scope
Tape	**M. EQ.**	**Spec.**	
---	Monoscope	90±5%	

Note: Use Service remote control unit

1. Operate the unit for at least 20 minutes.
2. Enter the Service mode. (See page 5-1)
3. Receive the Monoscope Pattern.
4. Press "8" button on the Service remote control unit and select " H-P " mode.
5. Press "CH ▲ / ▼" buttons on the Service remote control unit so that the monoscope pattern becomes 90±5% of display size and the circle is round.
6. Turn the power off and on again, using the main power button on the TV unit.

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12. Cut-off Adjustment

Purpose: To adjust the beam current of R, G, B, and screen voltage.

Symptom of Misadjustment: White color may be reddish, greenish or bluish.

Test Point	Adj. Point	Mode	Input
---	Screen-Control CH ▲ / ▼ buttons	RF	Black Raster
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See Reference Notes below.	
Figure			

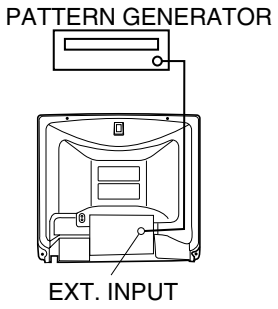

Fig. 2

Note: Screen Control FBT --- Main CBA
F.B.T= Fly Back Transformer
Use Service remote control unit

1. Degauss the CRT and allow CRT to operate for 20 minutes before starting the alignment.
2. Input the Black Raster Signal from RF Input.
3. Enter the Service mode. (See page 5-1)
4. Press "VOL ▼" button on the Service remote control unit and select "C/D" mode. (Display changes Service remote control unit. Display changes "C/D," "VCO," "7F," "FRENCH," "ACCESS CODE," "STEREO," "VIDEO TONE," "FM-MODE" and "AV-OUT" cyclically when "VOL ▼" button is pressed.) Then press "1." The display will momentarily show "CUT OFF R" (R= Red). Now there should be a horizontal line across the center of the picture tube. If needed gradually turn the screen control on the flyback clockwise until the horizontal line appears. Adjust the Red Cut off by pressing the "CH ▲ / ▼" buttons. Proceed to Step 5 when the Red Cut off adjustment is done.
5. Press the "2" button. The display will momentarily show "CUT OFF G" (G=Green). Adjust the Green Cut off by pressing the "CH ▲ / ▼" buttons. Proceed to step 6 when the Green Cut off adjustment is done.
6. Press the "3" button. The display will momentarily show "CUT OFF B" (B=Blue). Adjust the Blue cut off by pressing the "CH ▲ / ▼" buttons. When done with steps 4, 5 and 6 the horizontal line should be pure white. If not, then attempt the Cut off adjustment again.

13. White Balance Adjustment

Purpose: To mix red, green and blue beams correctly for pure white.

Symptom of Misadjustment: White becomes bluish or reddish.

Test Point	Adj. Point	Mode	Input
Screen	Screen-Control CH ▲ / ▼ buttons	RF	White Raster (APL 100%)
Tape	**M. EQ.**	**Spec.**	
	Pattern Generator, Color analyzer	See below	
Figure			

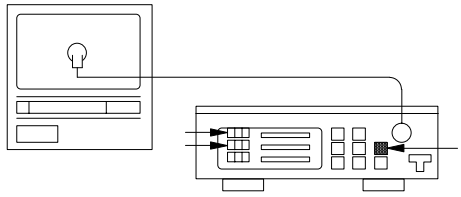

Fig. 3

Note: Use Service remote control unit

1. Operate the unit more than 20 minutes.
2. Face the unit to the East. Degauss the CRT using a degaussing coil.
3. Input the White Raster (APL 100%).
4. Set the color analyzer to the CHROMA mode and after zero point calibration, bring the optical receptor to the center on the tube surface (CRT).
5. Enter the Service mode. (See page 5-1) Press "VOL ▼" button on the Service remote control unit and select "C/D" mode. (Display changes Service remote control unit. Display changes "C/D," "VCO," "7F," "FRENCH," "ACCESS CODE," "STEREO," "VIDEO TONE," "FM-MODE" and "AV-OUT" cyclically when "VOL ▼" button is pressed.) Then press No. 8 button on the Service remote control unit.
6. Press No. 4 button on the Service remote control unit for Red adjustment. Press N0. 5 button on the Service remote control unit for Blue adjustment.
7. In each color mode, press "CH ▲ / ▼" buttons to adjust the values of color.
8. Adjust Red and Blue color so that the temperature becomes 9200K (x : 286 / y : 294)±3%.
9. At this time, re-check that horizontal line is white. If not, re-adjust Cut-off Adjustment until the horizontal line becomes pure white.
10. Turn the unit off and on again to return to normal mode. Receive APL 100% white signal and confirm that chroma temperatures become 9200K (x : 286 / y : 294)±3%.

Note: Confirm that Cut Off Adj. is correct after this adjustment, and perform Cut Off Adj. if needed.

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14. Sub-Brightness Adjustment

Purpose: To get proper brightness.

Symptom of Misadjustment: If Sub-Brightness is incorrect, proper brightness cannot be obtained by adjusting the Brightness Control.

Test Point	Adj. Point	Mode	Input
---	CH ▲ / ▼ buttons	RF	IQW
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below	
Figure			

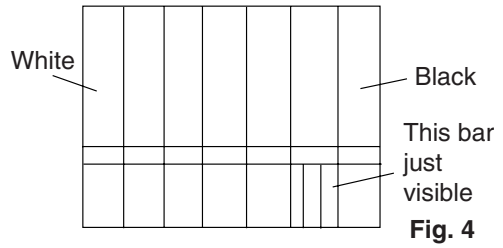

Fig. 4

Note: IQW Setup level --- 7.5 IRE
Use Service remote control unit

1. Enter the Service mode. (See page 5-1)
   Then input IQW signal from RF Input.
2. Press "MENU" button on the Service remote control unit and select "BRT" mode. (Display changes "BRT," "CNT," "CLR," and "TNT" cyclically when MENU button is pressed.) Press "CH ▲ / ▼" buttons so that the bar is just visible (See above figure.)
3. Turn the power off and on again, using the main power button on the TV unit.

15. Focus Adjustment

Purpose: Set the optimum Focus.

Symptom of Misadjustment: If Focus Adjustment is incorrect, blurred images are shown on the display.

Test Point	Adj. Point	Mode	Input
---	Focus Control	RF	Mono-scope
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below	

Note: Focus VR (FBT) - Main CBA FBT=Fly Back Transformer

1. Operate the unit more than 30 minutes
2. Face the unit to the East and degauss the CRT using a degaussing coil.
3. Input the Monoscope Pattern.
4. Adjust the Focus Control on the FBT to obtain a clear picture.

The following 2 adjustments normally are not attempted in the field. They should be done only when replacing the CRT then adjust as a preparation.

16. Purity Adjustment

Purpose: To obtain pure color.

Symptom of Misadjustment: If Color Purity Adjustment is incorrect, large areas of color may not be properly displayed.

Test Point	Adj. Point	Mode	Input
---	Deflection Yoke Purity Magnet	---	Red Color
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below.	
Figure			

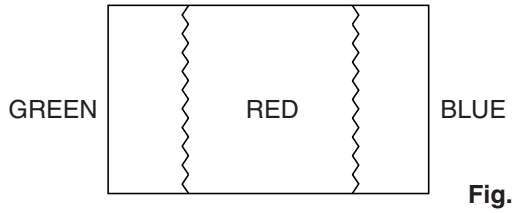

Fig. 5

1. Set the unit facing the East.
2. Operate the unit for over 30 minutes before adjusting.
3. Fully degauss the unit using an external degaussing coil.
4. Loosen the screw on the Deflection Yoke Clamper and pull the Deflection Yoke back away from the screen. (See Fig. 6)
5. Loosen the Ring Lock and adjust the Purity Magnets so that a red field is obtained at the center of the screen. Tighten Ring Lock. (See Fig. 5,6)
6. Slowly push the Deflection Yoke toward the bell of the CRT and set it where a uniform red field is obtained.
7. Tighten the clamp screw on the Deflection Yoke.

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17. Convergence Adjustment

Purpose: To obtain proper convergence of red, green and blue beams.

Symptom of Misadjustment: If Convergence Adjustment is incorrect, the edge of white letters may have color edges.

Test Point	Adj. Point	Mode	Input
---	C.P. Magnet (RB), C.P. Magnet (RB-G), Deflection Yoke	---	Dot Pattern or Crosshatch
Tape	**M. EQ.**	**Spec.**	
---	Pattern Generator	See below.	

Figure

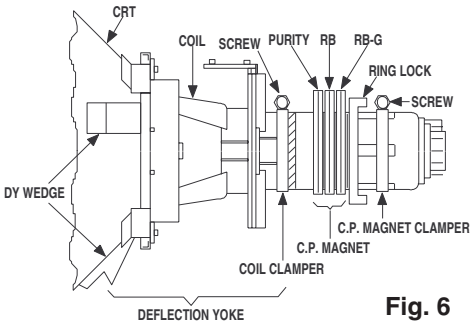

Fig. 6

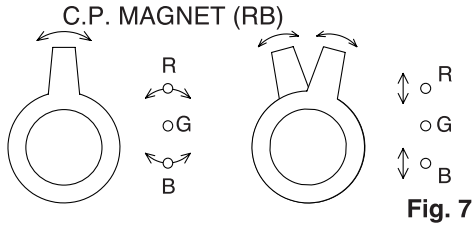

Fig. 7

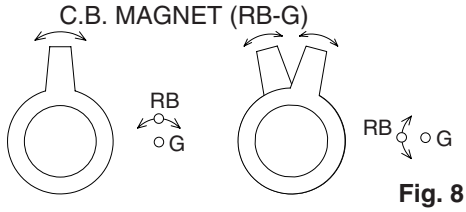

Fig. 8

1. Loosen the Ring Lock and align red with blue dots or Crosshatch at the center of the screen by rotating (RB) C.P. Magnets. (See Fig. 7)
2. Align red / blue with green dots at the center of the screen by rotating (RB-G) C.P. Magnet. (See Fig. 8)
3. Fix the C.P. Magnets by tightening the Ring Lock.
4. Remove the DY Wedges and slightly tilt the Deflection Yoke horizontally and vertically to obtain the best overall convergence.
5. Fix the Deflection Yoke by carefully inserting the DY Wedges between CRT and Deflection Yoke.

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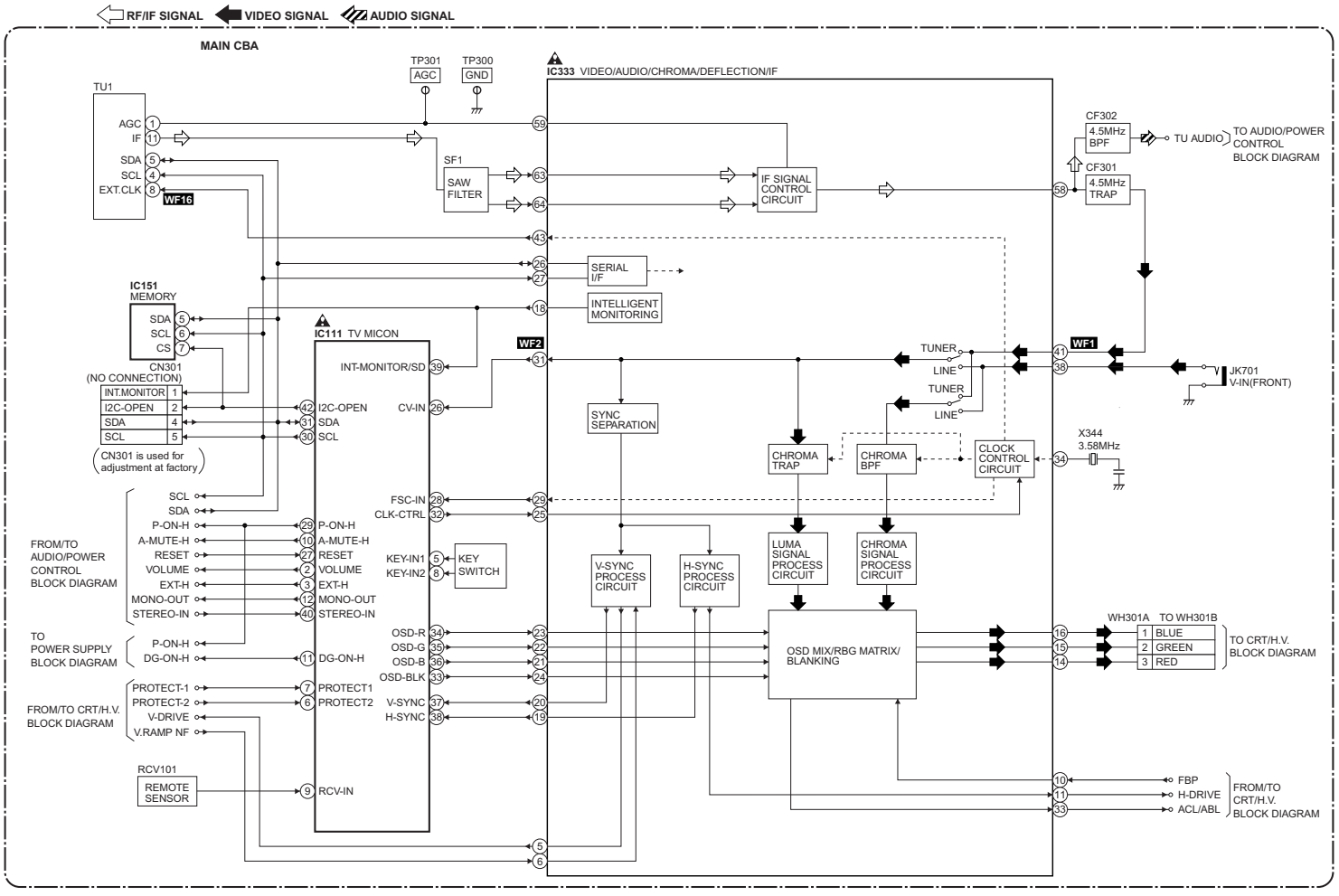
BLOCK DIAGRAMS

IF/Video/System Control Block Diagram



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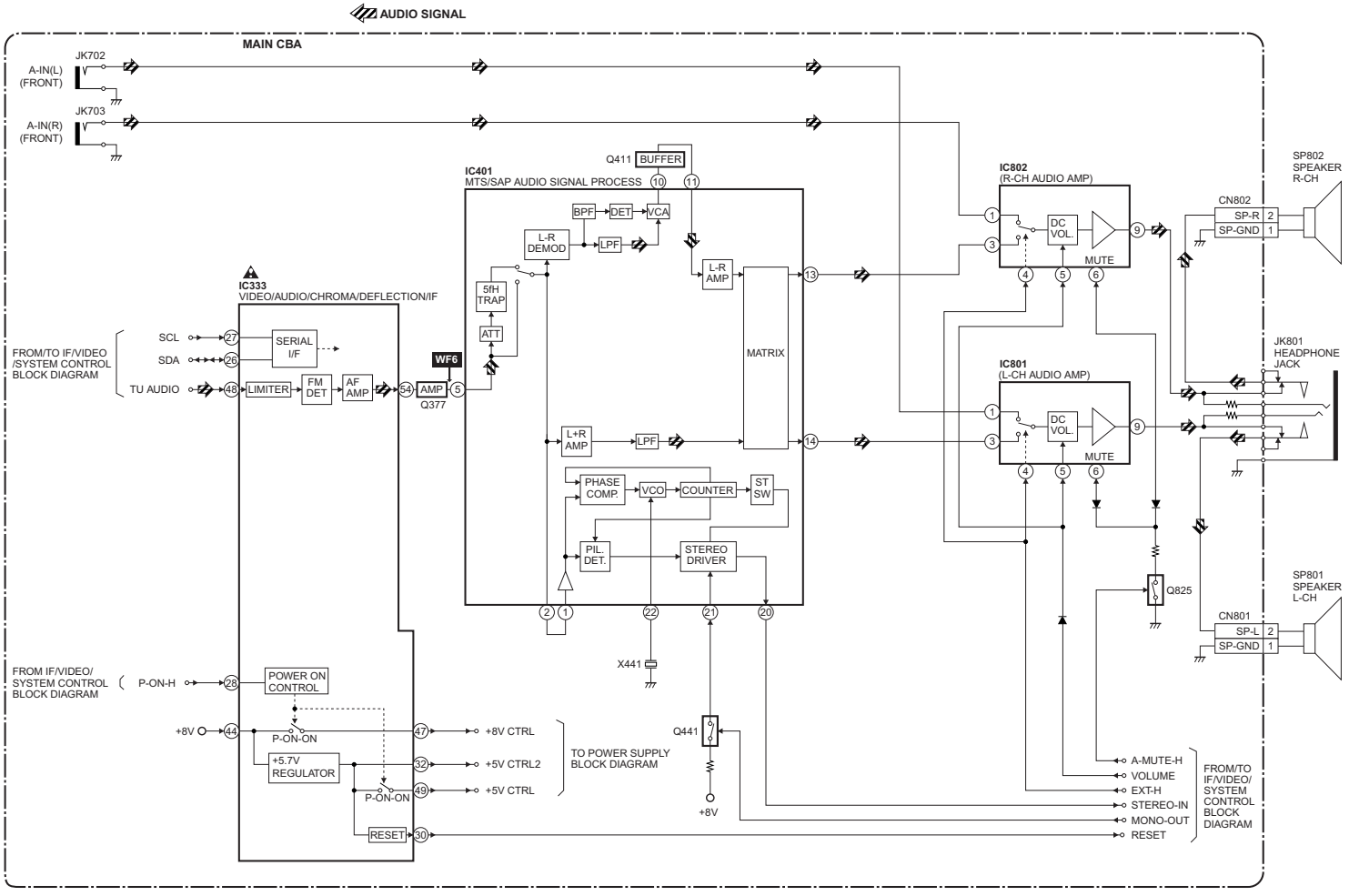
Audio/Power Control Block Diagram



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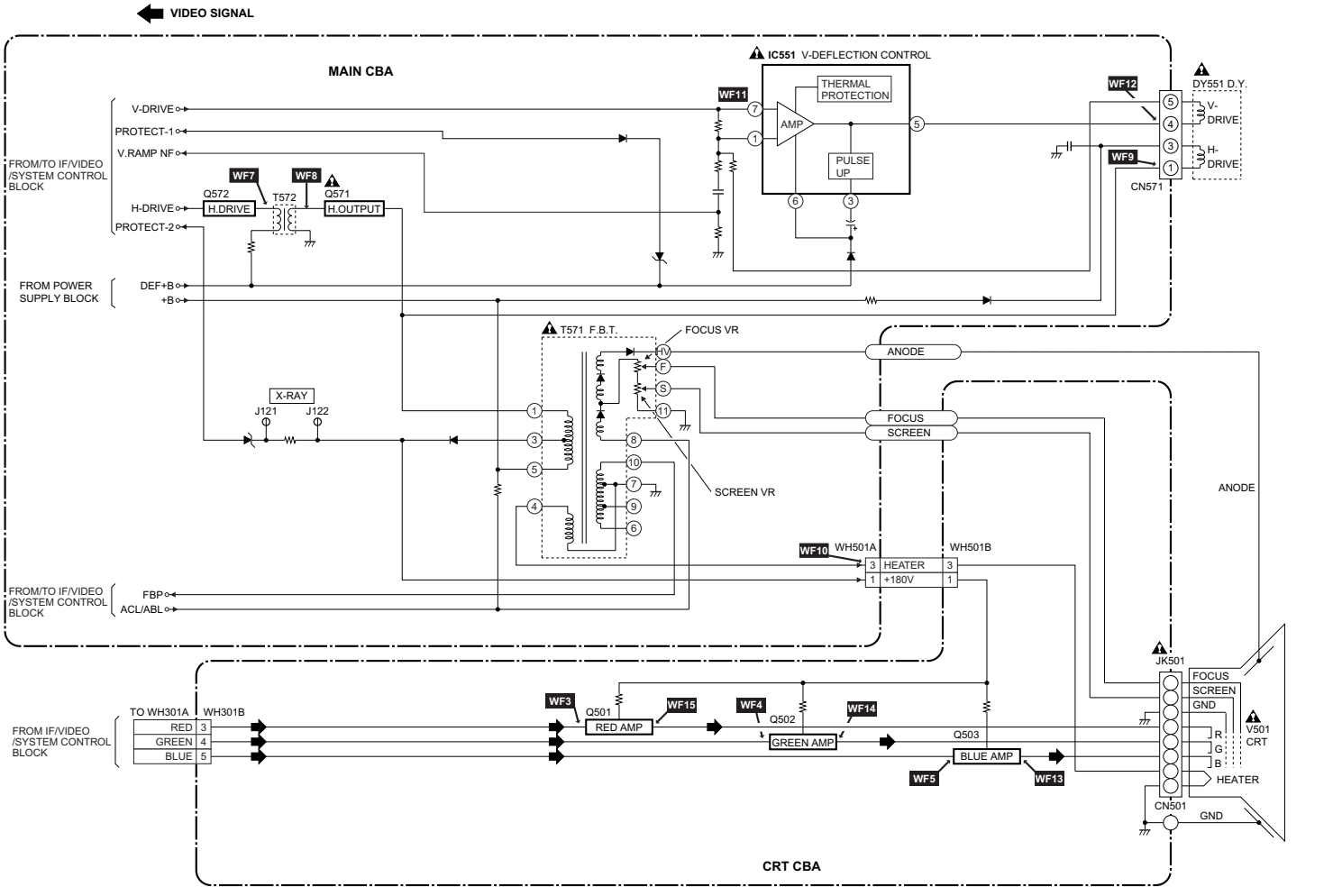
CRT/H.V. Block Diagram



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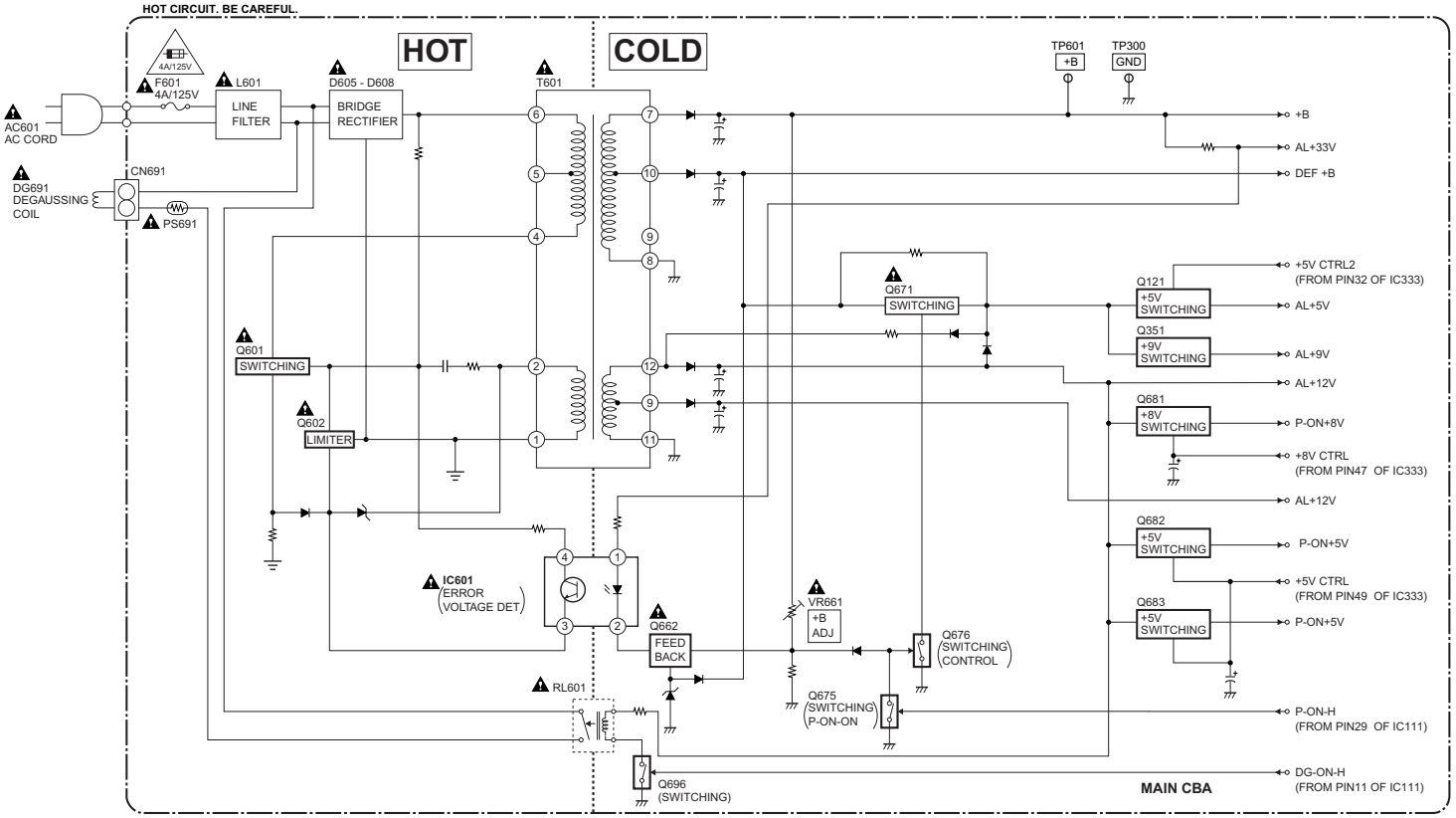
Power Supply Block Diagram

CAUTION !
Switching power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole reprèsente un fusible à fusion rapide."

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.



6-7 6-8 L6118BLP

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SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Note:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}$μF).
5. All voltages are DC voltages unless otherwise specified.

Note of Capacitors:

ML --- Mylar Cap. PP --- Metallized Film Cap. SC --- Semiconductor Cap. L --- Low Leakage type

Temperature Characteristics of Capacitors are noted with the following:

B --- ±10% CH --- 0±60ppm/°C CSL --- +350~-1000ppm/°C

Tolerance of Capacitors are noted with the following:

Z --- +80~-20%

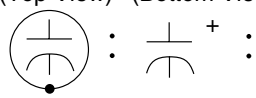
Note of Resistors:

CEM --- Cement Res. MTL --- Metal Res. F --- Fuse Res.

Capacitors and transistors are represented by the following symbols.

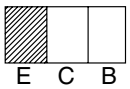
CBA Symbols

(Top View) (Bottom View)



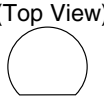
Electrolytic Capacitor

(Bottom View)



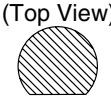
Transistor or Digital Transistor

(Top View)



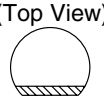
NPN Transistor

(Top View)



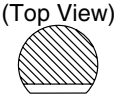
PNP Transistor

(Top View)



NPN Digital Transistor

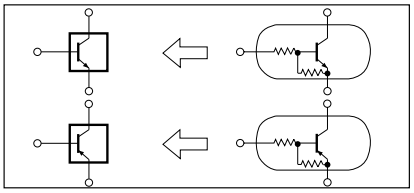
(Top View)



PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor



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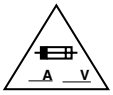
LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE. ATTENTION: POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.



RISK OF FIRE-REPLACE FUSE AS MARKED.

2. **CAUTION:**

Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F601) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

3. **Note:**

(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.

(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

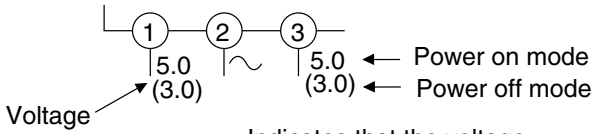
4. Wire Connectors

(1) Prefix symbol "CN" means "connector" (can disconnect and reconnect).

(2) Prefix symbol "CL" means "wire-solder holes of the PCB" (wire is soldered directly).

5. Note: Mark "●" is a leadless (chip) component.

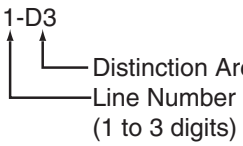
6. Voltage indications on the schematics are as shown below:
Plug the TV power cord into a standard AC outlet.:



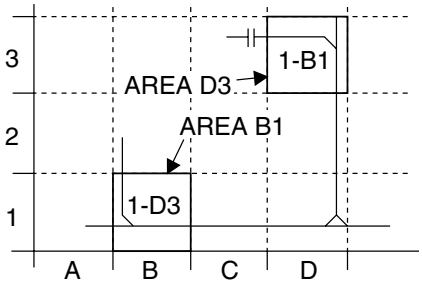
Indicates that the voltage is not consistent here.

Unit: Volts

7. How to read converged lines



Examples:
1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



8. Test Point Information

: Indicates a test point with a jumper wire across a hole in the PCB.

: Used to indicate a test point with a component lead on foil side.

: Used to indicate a test point with no test pin.

: Used to indicate a test point with a test pin.

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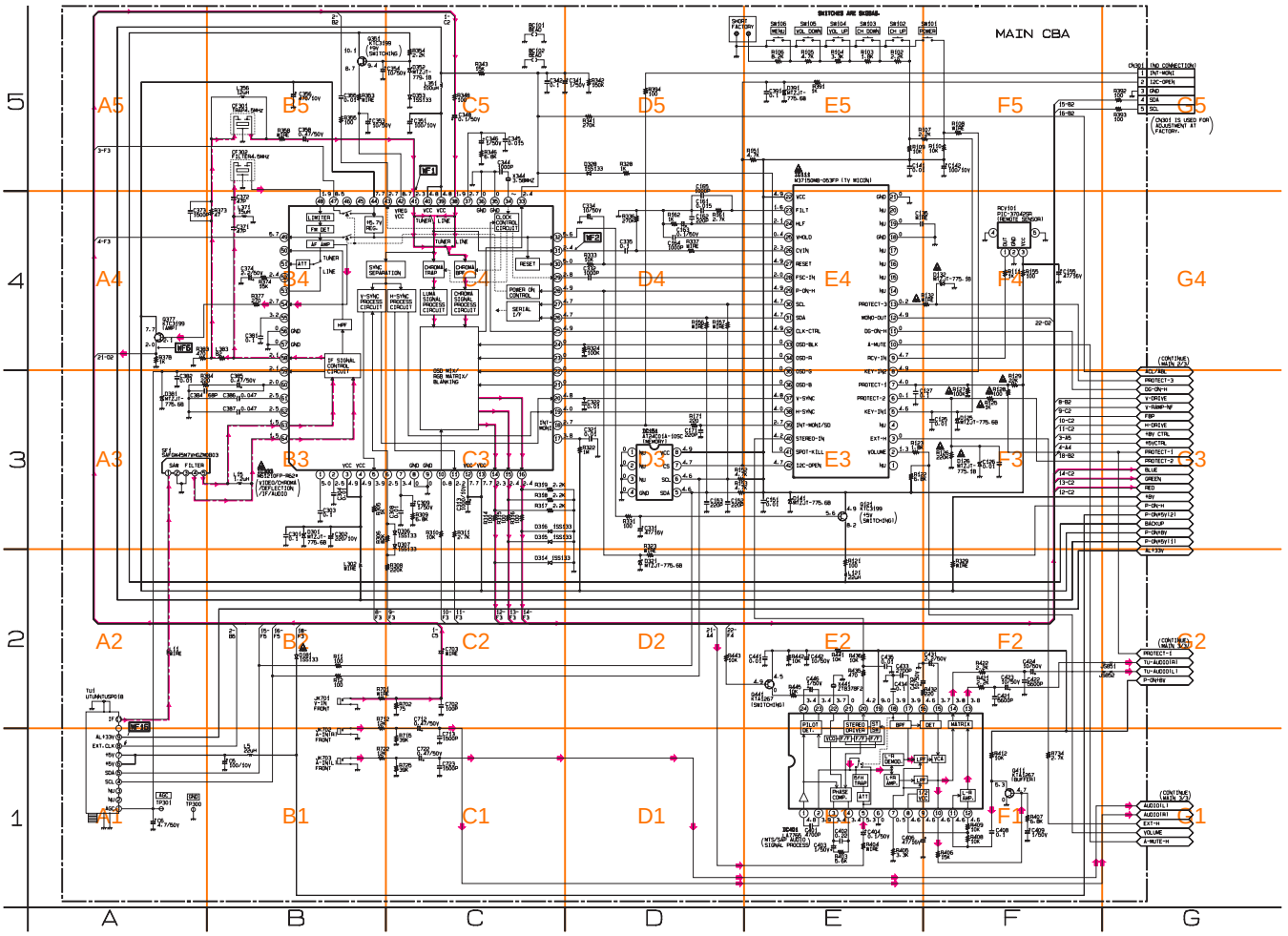
Main 1/3 Schematic Diagram

IF SIGNAL
VIDEO SIGNAL
AUDIO SIGNAL



MAIN 1/3

Ref No.	Position
ICS	
IC111	E-5
IC151	D-3
IC333	B-3
IC401	E-1
TRANSISTORS	
Q121	E-3
Q351	B-5
Q377	A-4
Q411	F-1
Q441	E-2
TEST POINTS	
TP300	A-1
TP301	A-1
CONNECTOR	
CN301	G-5

7-3 7-4 7-5 L6118SCM1

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Main 2/3 & CRT Schematic Diagram

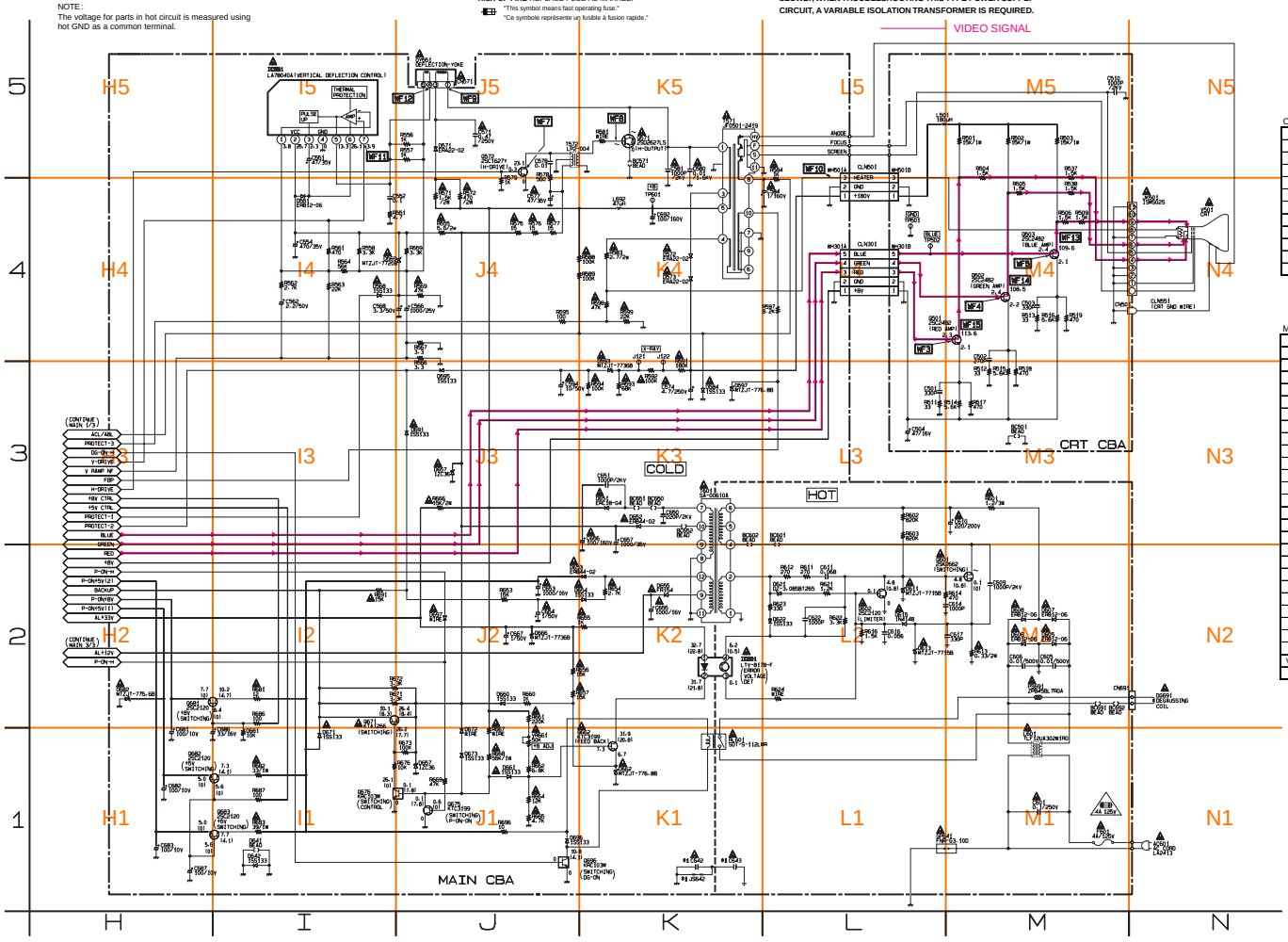
CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fusis."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

VIDEO SIGNAL



CRT

Ref No.	Position
TRANSISTORS	
Q501	M-4
Q502	M-4
Q503	M-4
TEST POINTS	
TP501	L-4
TP502	L-4
CONNECTORS	
CN501	M-4
WH301B	L-4
WH501B	L-5

MAIN 2/3

Ref No.	Position
ICS	
IC551	I-5
IC601	K-2
TRANSISTORS	
Q571	K-5
Q572	J-5
Q601	M-2
Q602	L-2
Q662	K-1
Q671	I-2
Q675	J-1
Q676	I-1
Q681	H-2
Q682	H-1
Q683	I-1
Q696	K-1
TEST POINTS	
J121	K-4
J122	K-4
TP601	K-4
CONNECTORS	
CN571	J-5
CN691	M-2
WH301A	L-4
WH501A	L-5
VARIABLE RESISTOR	
VR661	J-1

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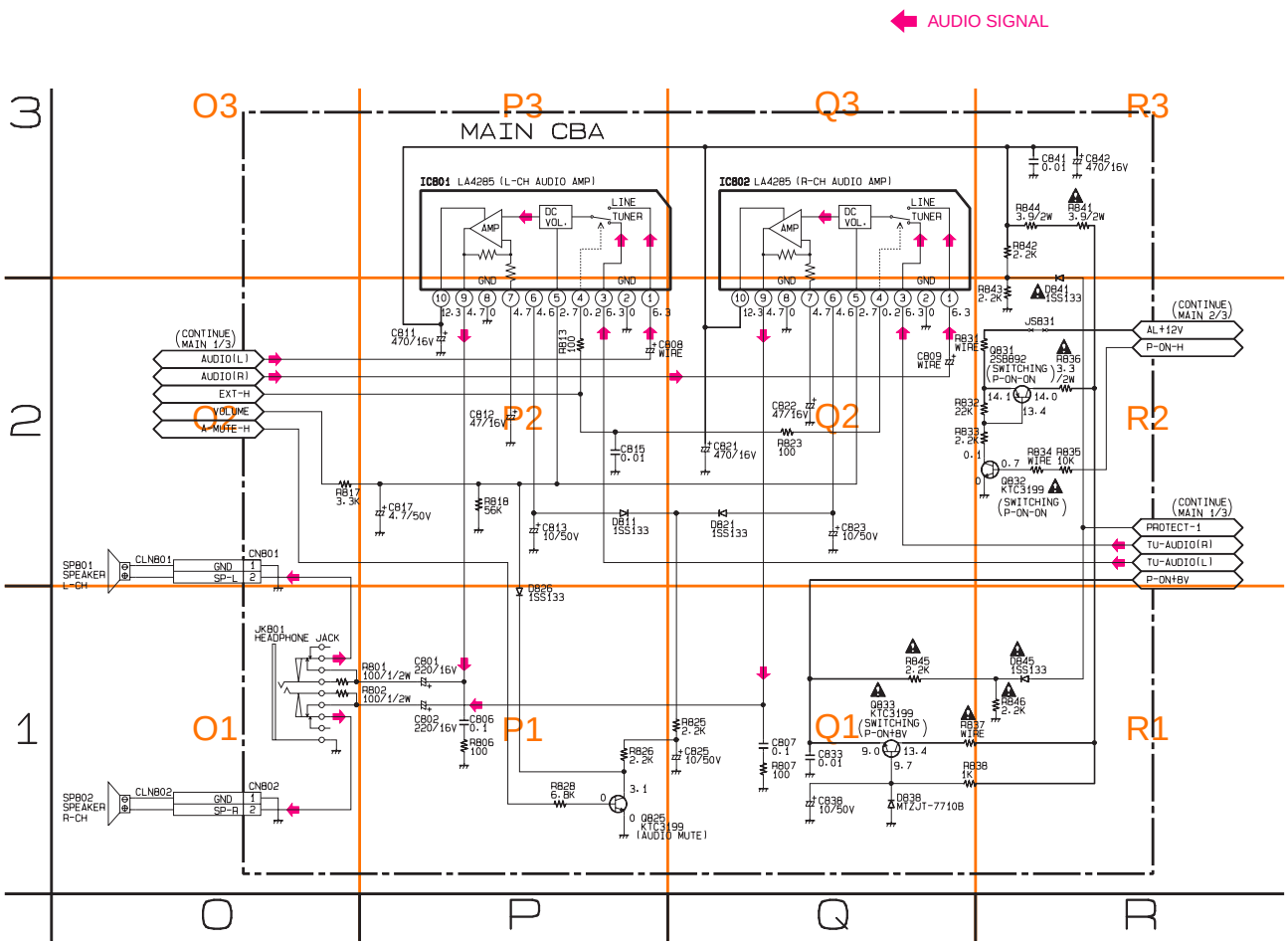
Main 3/3 Schematic Diagram



MAIN 3/3

Ref No.	Position
ICS	
IC801	P-3
IC802	Q-3
TRANSISTORS	
Q825	P-1
Q831	R-2
Q832	R-2
Q833	Q-1
CONNECTOR	
CN801	O-2
CN802	O-1

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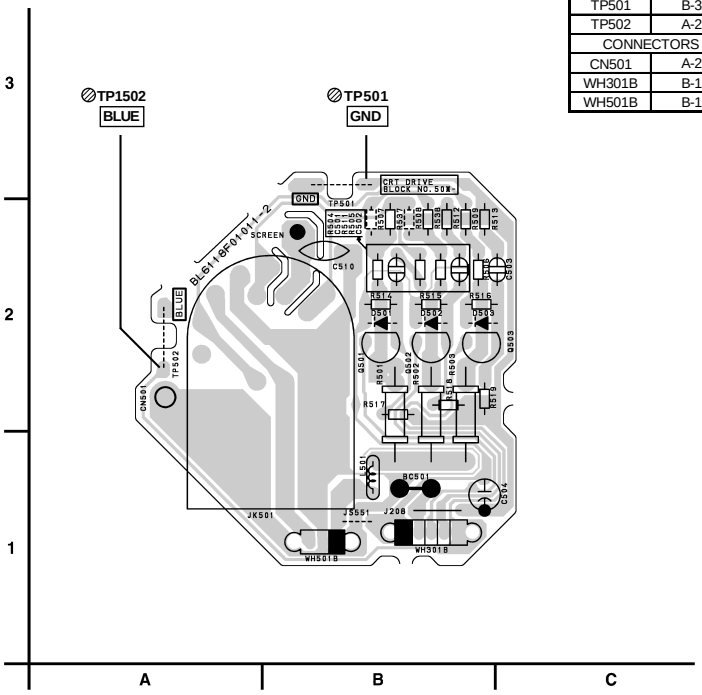
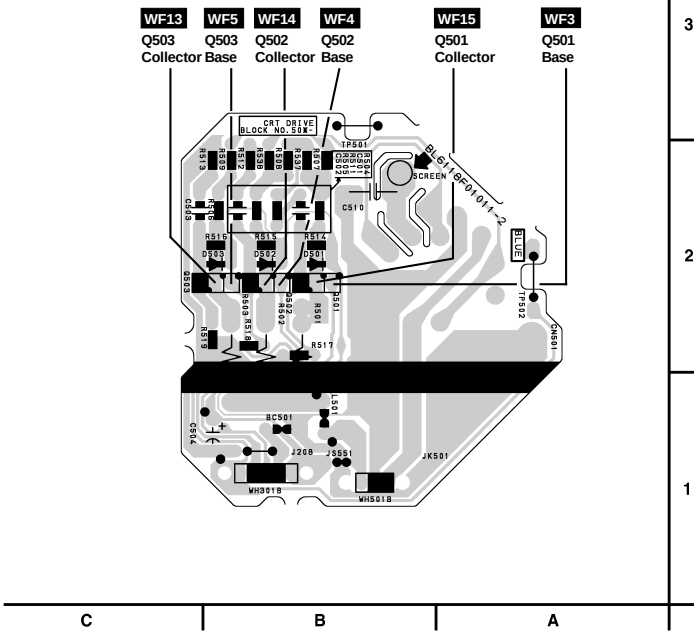
CRT CBA Top View

CRT CBA

Ref No.	Position
TRANSISTORS	
Q501	B-2
Q502	B-2
Q503	C-2
TEST POINTS	
TP501	B-3
TP502	A-2
CONNECTORS	
CN501	A-2
WH301B	B-1
WH501B	B-1



CRT CBA Bottom View



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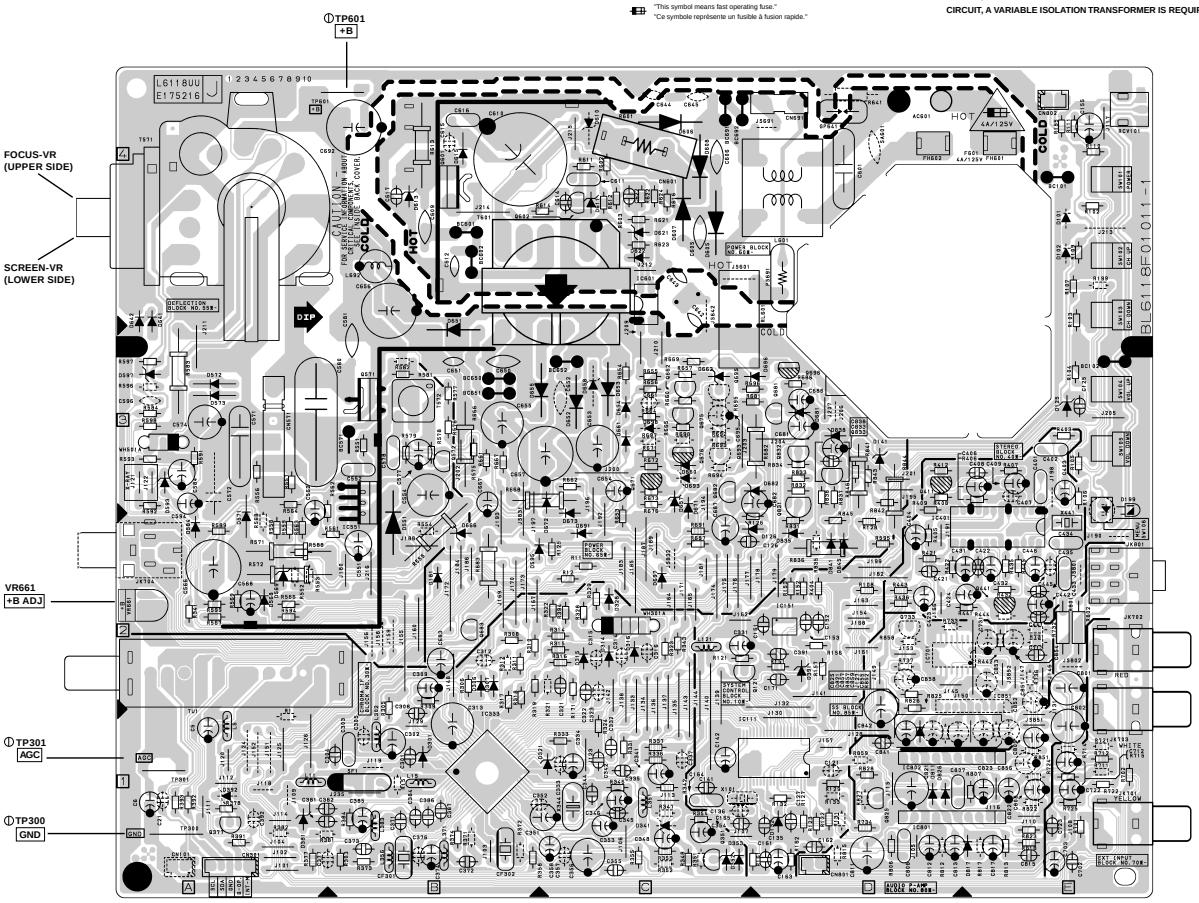
Main CBA Top View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply.
Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.



MAIN CBA

Ref No.	Position
ICS	
IC111	D-1
IC151	D-2
IC333	B-1
IC401	D-2
IC551	B-2
IC601	C-4
IC801	D-1
IC802	D-1
TRANSISTORS	
Q121	D-2
Q351	C-1
Q377	A-1
Q411	D-3
Q441	E-2
Q571	B-3
Q572	B-3
Q601	B-4
Q602	C-4
Q662	C-3
Q671	C-3
Q675	C-3
Q676	C-3
Q681	D-3
Q682	C-3
Q683	B-2
Q696	D-3
Q825	D-1
Q831	D-3
Q832	D-3
Q833	D-3
TEST POINTS	
J121	A-3
J122	A-3
TP300	A-1
TP301	A-1
TP601	A-5
CONNECTOR	
CN301	A-1
CN571	A-3
CN691	D-4
CN801	D-1
CN802	E-4
WH301A	C-2
WH501A	A-3
VARIABLE RESISTOR	
VR661	A-2

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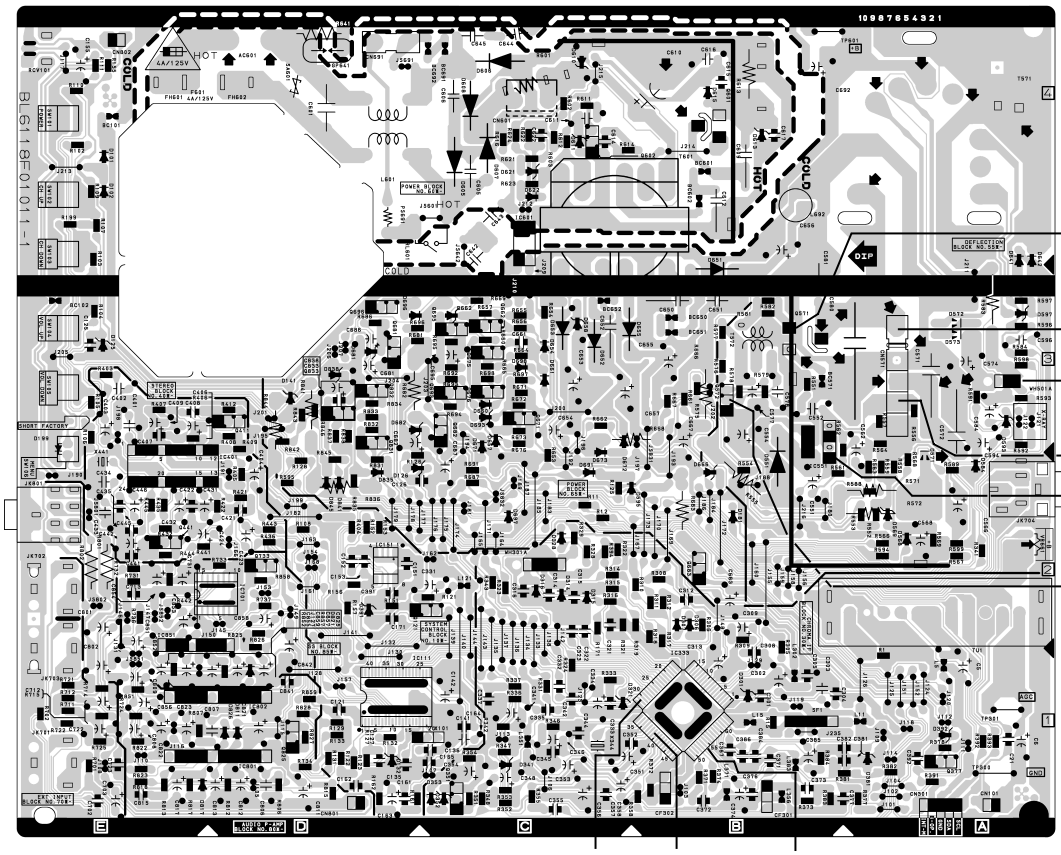
Main CBA Bottom View

CAUTION !
Fixed voltage power supply circuit is used in this unit.
If Main Fuse (F601) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.
ATTENTION : POUR UNE PROTECTION CONTINUE LES RISQES D'INCELE N'UTILISER QUE DES FUSIBLE DE MEMO TYPE.
RISK OF FIRE-REPLACE FUSE AS MARKED.
"This symbol means fast operating fuse."
"Ce symbole représente un fusible à fusion rapide."

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT, AN ISOLATION TRANSFORMER MUST BE USED. ALSO, IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY, WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT, A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.



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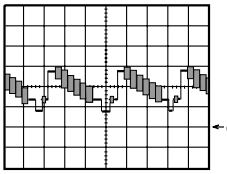
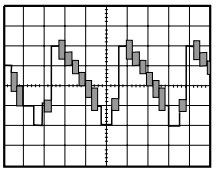
WAVEFORMS

WF1 ~ WF16 = Waveforms to be observed at Waveform check points. (Shown in Schematic Diagram.)

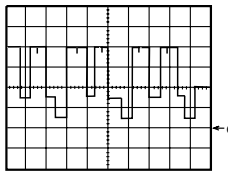
Input: NTSC Color Bar Signal (with 1kHz Audio Signal)
INITIAL POSITION: Unplug unit from AC outlet for at least 5 minutes. reconnect to AC outlet and then turn power on.
(Brightness---Center Color---Center Tint --- Center Contrast---Approx 70%)



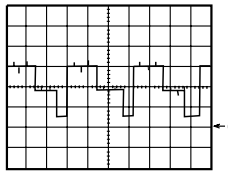
WF1 1DIV: 0.5V 20µsec
IC 333 Pin 41



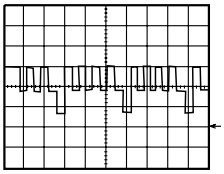
WF2 1DIV: 0.5V 20µsec
IC 333 Pin 31



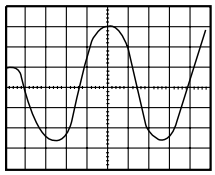
WF3 1DIV: 2V 20µsec
Q501 Base



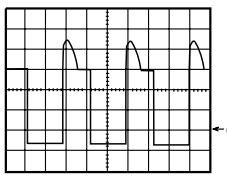
WF4 1DIV: 2V 20µsec
Q 502 Base



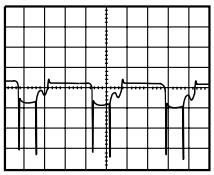
WF5 1DIV: 2V 20µsec
Q 503 Base



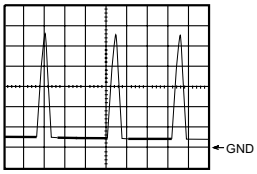
WF6 1DIV: 0.1V 0.2msec
Q377 Emitter



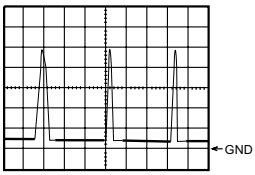
WF7 1DIV: 10V 20µsec
Q 572 Collector



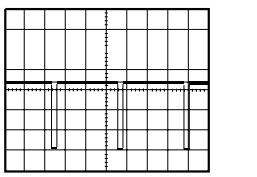
WF8 1DIV: 5V 20µsec
Q 571 Base



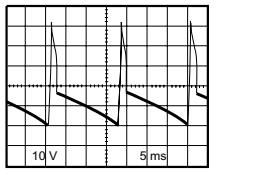
WF9 1DIV: 200V 20µsec
CN 571 Pin 1



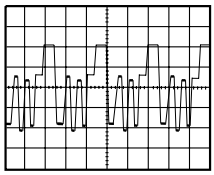
WF10 1DIV: 5V 20µsec
WH501A Pin 3



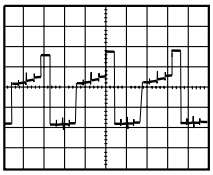
WF11 1DIV: 2V 5msec
IC 551 Pin 7



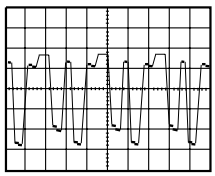
WF12 1DIV: 10V 5msec
CN 571 Pin 4



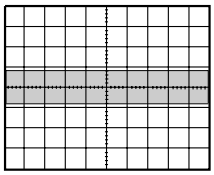
WF13 1DIV: 20V 20µsec
Q503 Collector



WF14 1DIV: 20V 20µsec
Q 502 Collector



WF15 1DIV: 20V 20µsec
Q 501 Collector



WF16 1DIV: 0.2V 20µsec
TU 1 Pin 8

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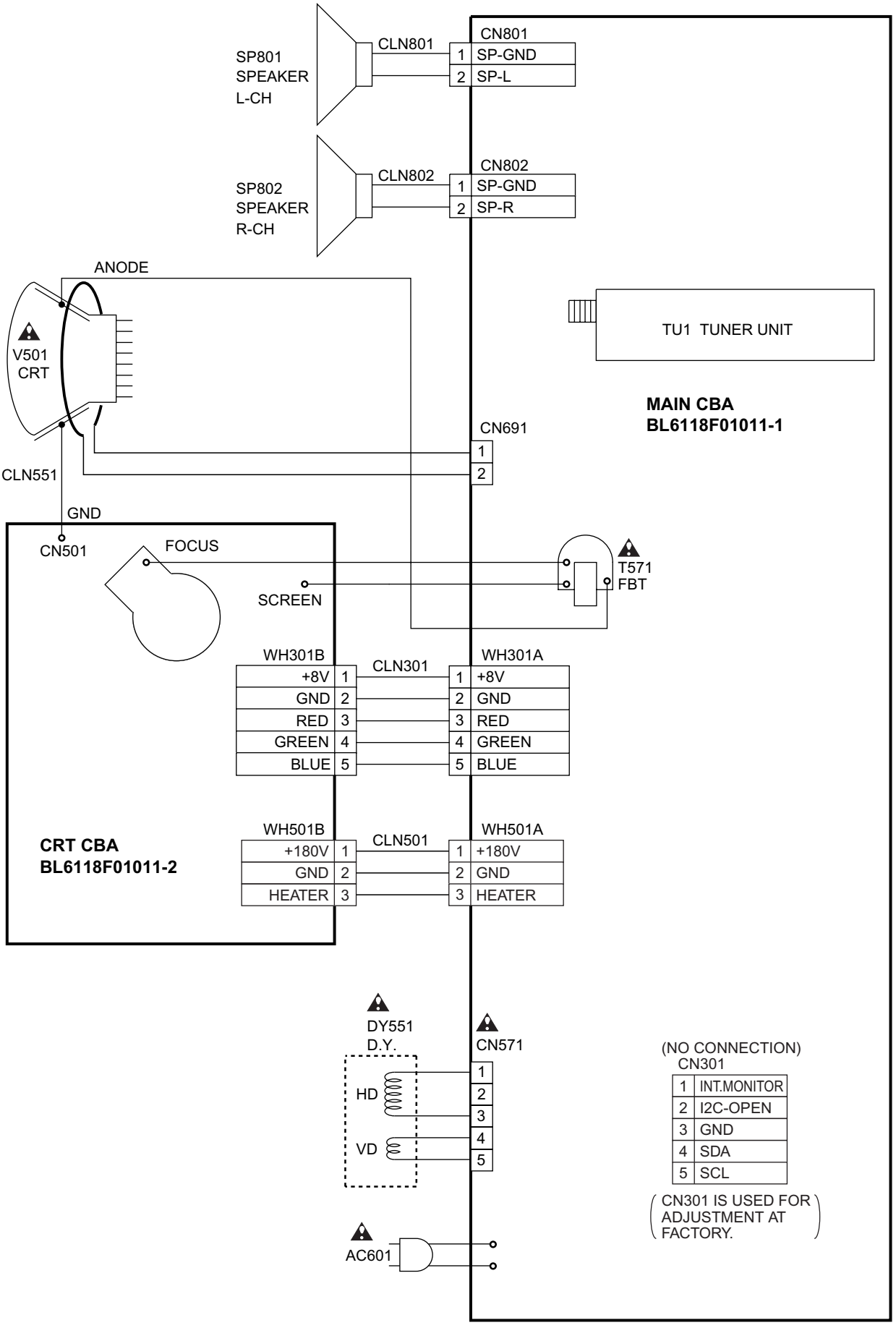
WIRING DIAGRAM



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IC PIN FUNCTIONS

IC111(TV Micro Computer)

Pin No.	Signal Name	Function
1	N.U.	Not Used
2	VOLUME	Volume PWM Output
3	EXT-H	Ext-H
4	N.U.	Not Used
5	KEY-IN 1	Key Input 1 (Main)
6	PROTECT-2	Power Supply Protection
7	PROTECT-1	Power Supply Protection
8	KEY-IN 2	Key Input 2 (Main)
9	RCV-IN	Input For Remote Control
10	A-MUTE	Audio Mute
11	DG-ON-H	Degaussing Coil Control
12	MONO-OUT	Mono Audio Select Signal Output
13	PROTECT-3	Power Supply Protection
14	N.U.	Not Used
15	N.U.	Not Used
16	N.U.	Not Used
17	N.U.	Not Used
18	GND	GND
19	N.U.	Not Used
20	N.U.	Not Used
21	GND	GND
22	VCC	+5V
23	FILT	PLL Filter
24	HLF	Filter for CCD
25	VHOLD	VHOLD
26	CVIN	Input for Video Signal
27	RESET	RESET
28	FSC-IN	External Clock Input
29	P-ON-H	Output for P-ON-H
30	SCL	I2C-BUS ControllerInter-face (Clock)
31	SDA	I2C-BUS ControllerInter-face (Data)
32	CLK-CTRL	Clock Control Signal
33	OSD-BLK	Picture Shut Down Output
34	OSD-R	Red Output
35	OSD-G	Green Output
36	OSD-B	Blue Output
37	V-SYNC	Input For Vertical Synchronize Signal
38	H-SYNC	Input For Horizontal Synchronize Signal
39	INT-MONI/ SD	Intelligent Monitor/ Detection SD signal
40	STEREO-IN	Audio Mode Signal Input
41	SPOT-KILL	Center Measure for Spot
42	I2C-OPEN	White Balance Adjustment Judgement

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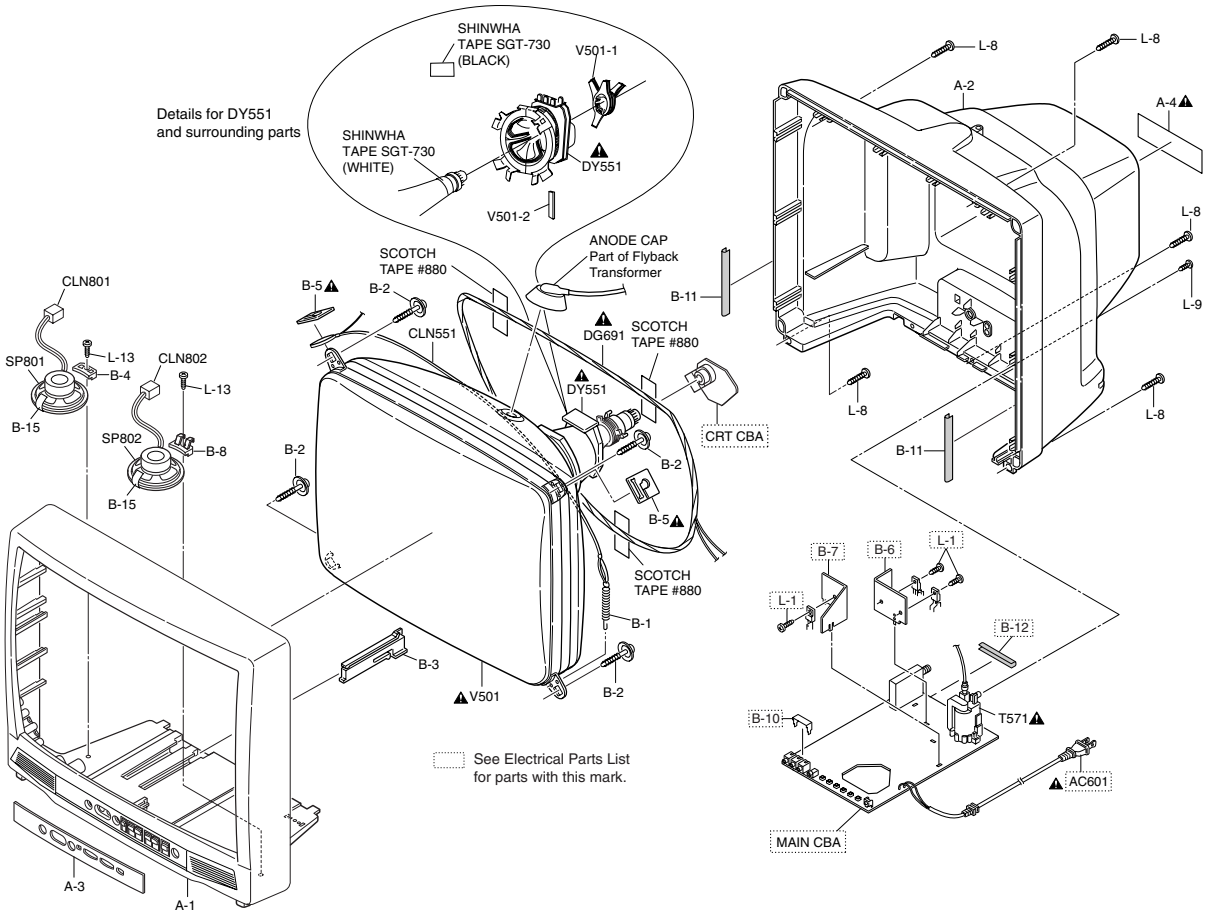
EXPLODED VIEWS

Cabinet



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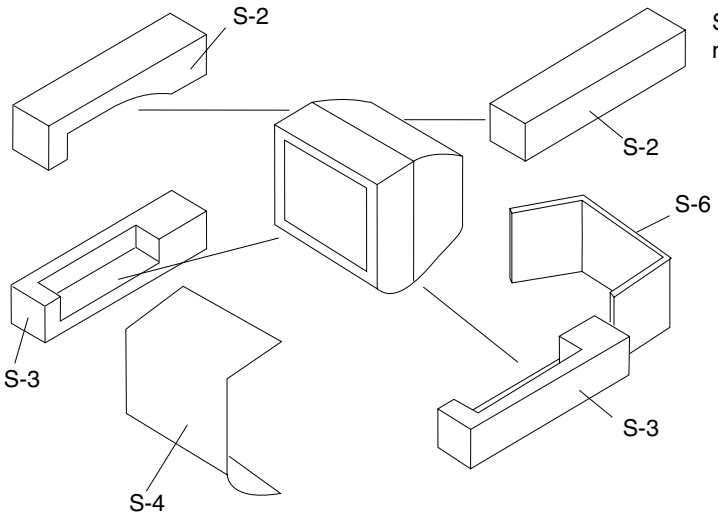
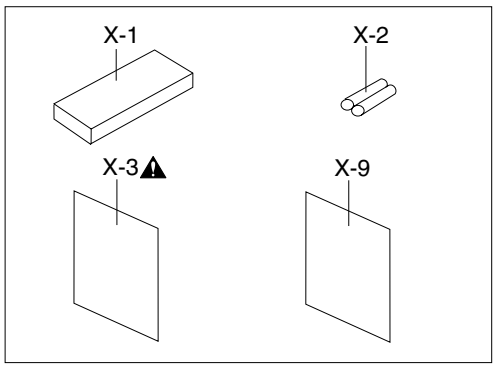
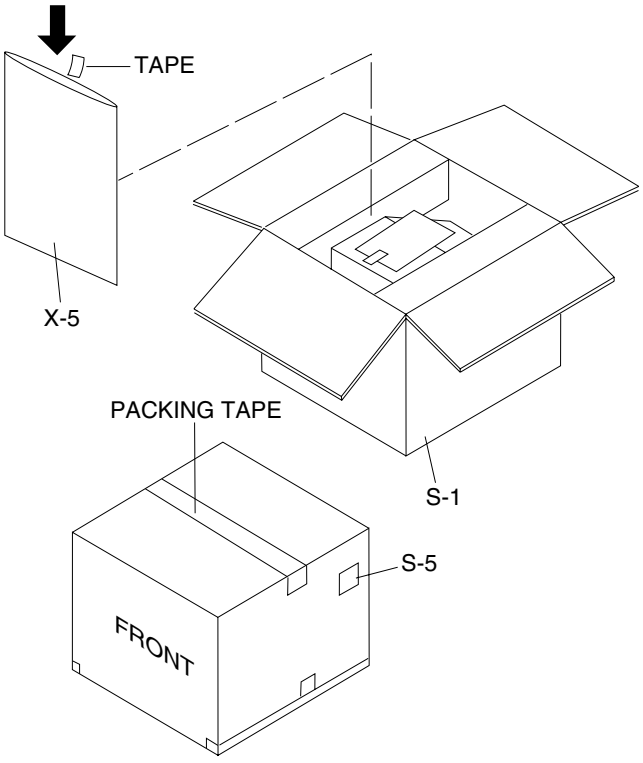
Packing



Some Ref. Numbers are not in sequence.





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MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE:
Parts that are not assigned part numbers (----------) are not available.

Ref. No.	Description	Part No.
A-1	FRONT CABINET L6118UU	0EM000672
A-2	REAR CABINET L1400UA	0EM000482
A-3	CONTROL PLATE L6118UU	0EM201635
A-4⚠	RATING LABEL L6118UU	----------
B-1	TENSION SPRING B0080B0:EM40808	26WH006
B-2	CRT MOUNTING SCREW B0030U1:K42419	8A00083
B-3	PCB HOLDER L1400UA	0EM301429
B-4	SPEAKER HOLDER L1400UA	0EM406026
B-5⚠	DEGAUSS HOLDER L9800UA	0EM404845
B-8	SPEAKER HOLDER L1400UA	0EM406098
B-11	CLOTH L9800UA:95X15XT:0.5	0EM405041
B-15	CLOTH(10X30XT1.0) L9814UQ	0EM405137
CLN551	CRT GND WIRE CRT GND	WX1L7820-003
CLN801	WIRE ASSEMBLY SPEAKER WIRE(220MM)	WX1L7950-001
CLN802	WIRE ASSEMBLY SPEAKER WIRE(180MM)	WX1L1131-001
DG691⚠	DEGAUSSING COIL AVDG014 or	LLBH00ZWR003
⚠	DEGAUSSING COIL F-003	LLBH00ZTM003
L-8	SCREW, P-TIGHT 4X18 BIND HEAD +	GBMP4180
L-9	SCREW TAPPING M4X14	DBU14140
L-13	SCREW, P-TIGHT 3X12 BIND HEAD+	GBMP3120
SP801	SPEAKER S08F02B or	DSD0808XQ010
	SPEAKER J-F097-C5	DSD0808DCP01
SP802	SPEAKER S08F02B or	DSD0808XQ010
	SPEAKER J-F097-C5	DSD0808DCP01
	PACKING	
S-1	CARTON L6118UU	0EM407440
S-2	STYRFOAM B0TTOM ASSEMBLY L6100UA	0EM406813
S-3	STYRFOAM TOP ASSEMBLY L9814UQ	0EM405094
S-4	SET SHEET L1400UA:1000X1500	0EM406680
S-5	SERIAL NO. LABEL L6118UU	0EM407439
S-6	HOLD PAD L6100UA	0EM406812
	ACCESSORIES	
X-1	REMOCON UNIT 130/ERC001/N0158UD	N0158UD
X-2	DRY BATTERY R6P UM3 or	XB0M451GH001
	DRY BATTERY R6P/2S or	XB0M451T0001
	DRY BATTERY(SUNRISE) R6SSE/2S or	XB0M451MS002
	DRY BATTERY R6P(AR)2PX or	XB0M451HU002
	DRY BATTERY R6P(AR)2P X ICI	XB0M451HU003
X-3⚠	OWNER'S MANUAL(E)/(S) L6118UU:ENGLISH/ SPANISH	0EMN01978
X-5	POLYETHYLENE BAG F8626B5	Z325350
X-9	RETURN STOP SHEET T4259UK	0EM406203A

Ref. No.	Description	Part No.
Note: 1. V501 (CRT) HAS COUPLE OF SUBSTITUTIONAL PARTS AND EACH PARTS ALSO HAS MATCHING COMBINATION WITH DY551. PLEASE SEE TABLE 1 FOR DETAILS OF MATCHING COMBINATION. 2. DY551 (DEFLECTION YOKE) HAS MATCHING COMBINATION WITH V501. PLEASE SEE TABLE 1 FOR DETAILS OF MATCHING COMBINATION.		
	CRT TYPE A	
DY551⚠	DEFLECTION YOKE KDY3MDA84X or	LLBY00ZMS013
⚠	DEFLECTION YOKE LLBY00ZSY006 or	LLBY00ZSY006
⚠	DEFLECTION YOKE CDY-M2019F	LLBY00ZQS004
V501⚠	CRT A48JLL90X or	TCRT190QS009
⚠	CRT A48JLL90X(K)	TCRT190QS019
V501-1	C.P.MAGNET JH225-014	XM04000BV009
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	CRT TYPE B	
DY551⚠	DEFLECTION YOKE KDY3MCB20X or	LLBY00ZMS016
⚠	DEFLECTION YOKE 330P510A37	LLBY00ZTHA01
V501⚠	CRT A48LGS30X	TCRT190THA01
V501-1	C.P.MAGNET JH225-014	XM04000BV009
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	CRT TYPE C	
DY551⚠	DEFLECTION YOKE DSE-1922FU(T) or	LLBY00ZSM007
⚠	DEFLECTION YOKE TMY0301F or	LLBY00ZMS017
⚠	DEFLECTION YOKE CDY-M2023F or	LLBY00ZQS005
⚠	DEFLECTION YOKE LLBY00ZSY007	LLBY00ZSY007
V501⚠	CRT A48LRH93X(W)	TCRT190P7002
V501-1	C.P.MAGNET JH225-014	XM04000BV009
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	CRT TYPE D	
DY551⚠	DEFLECTION YOKE LLBY00ZSY008	LLBY00ZSY008
V501⚠	CRT A48LVL095X	TCRT190MS011
V501-1	C.P.MAGNET JH225-014	XM04000BV009
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	CRT TYPE E	
V501⚠	CRT A48AKH13X01 K	TCRT190CP043
	CRT TYPE F	
DY551⚠	DEFLECTION YOKE KDY3MDD74X	LLBY00ZMS024
V501⚠	CRT A48AKH13X	TCRT190CP044
V501-1	C.P.MAGNET JH225-014	XM04000BV009
V501-2	WEDGE FT-00110W or	XV10000T4001
	WEDGE DB25SR	XV10000D9001
	CRT TYPE G	
DY551⚠	DEFLECTION YOKE DSE-1922FU(T) or	LLBY00ZSM007
⚠	DEFLECTION YOKE TMY0301F or	LLBY00ZMS017
⚠	DEFLECTION YOKE CDY-M2023F or	LLBY00ZQS005
⚠	DEFLECTION YOKE LLBY00ZSY007	LLBY00ZSY007
V501⚠	CRT A48LRH93X(W)	TCRT190PTD01

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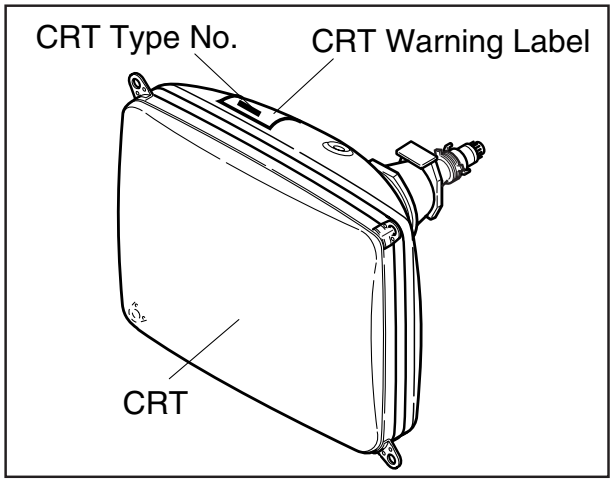
Table 1 (V501 and DY551 Combination)

Note 1: Purity and Convergence Adjustments must be performed following CRT replacement. Refer to Electrical Adjustment Instructions.

Note 2: Please confirm CRT Type No. on the CRT Warning Label which is located on the CRT. Then See the Table 1 for V501 and DY551 combination chart. Please refer this CRT, Deflection Yoke combination chart for parts order.

V501: CRT Type No.	V501: CRT Part No.	DY551: Deflection Yoke Part No.
CRT A48JLL90X	TCRT190QS009	LLBY00ZMS013
		LLBY00ZSY006
		LLBY00ZQS004
CRT A48JLL90X(K)	TCRT190QS019	LLBY00ZMS013
		LLBY00ZSY006
		LLBY00ZQS004
CRT A48LGS30X	TCRT190THA01	LLBY00ZMS016
		LLBY00ZTHA01
CRT A48LRH93X(W)	TCRT190P7002	LLBY00ZSM007
		LLBY00ZMS017
		LLBY00ZQS005
		LLBY00ZSY007
CRT A48LVL095X	TCRT190MS011	LLBY00ZSY008
CRT A48AKH13X01 K	TCRT190CP043	----------
CRT A48AKH13X	TCRT190CP044	LLBY00ZMS024
CRT A48LRH93X(W)	TCRT190PTD01	LLBY00ZSM007
		LLBY00ZMS017
		LLBY00ZQS005
		LLBY00ZSY007

CRT Warning Label Location



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ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (----------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J.....±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

MMA CBA

Ref. No.	Description	Part No.
	MMA-360 CBA Consists of the following	0ESA04626
	MAIN CBA CRT CBA	---------- ----------

MAIN CBA

Ref. No.	Description	Part No.
	MAIN CBA Consists of the following	----------
	CAPACITORS	
C5	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C6	ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASTL4R7
	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C125	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C126	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C127	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CA1J104TU014
	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C135	PCB JUMPER D0.6-P5.0	JW5.0T
C141	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C142	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C151	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C152	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C153	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C155	ELECTROLYTIC CAP. 47µF/16V M or	CE1CMASTL470
	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C161	CERAMIC CAP.(AX) B K 0.015µF/50V	CA1J153TU011
C162	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C163	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASDLR10
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDL0R1
C164	FILM CAP.(P) 0.001µF/50V J or	CMA1JJS00102
	FILM CAP.(P) 0.001µF/50V J	CA1J102MS029
C165	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C171	CERAMIC CAP.(AX) B K 220pF/50V	CCA1JKT0B221
C301	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CA1J104TU014
	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C302	ELECTROLYTIC CAP. 220µF/10V M or	CE1AMASTL221
	ELECTROLYTIC CAP. 220µF/10V M	CE1AMASDL221
C303	FILM CAP.(P) 0.1µF/50V J or	CMA1JJS00104
	FILM CAP.(P) 0.1µF/50V J	CA1J104MS029
C304	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C308	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C309	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C313	ELECTROLYTIC CAP. 1000µF/10V M(VR) or	CE1AMZNTL102
	ELECTROLYTIC CAP. 1000µF/10V M or	CE1AMZNDL102
	ELECTROLYTIC CAP. 1000µF/10V M	CE1AMZADL102
C321	CERAMIC CAP.(AX) Y M 0.01µF/16V	CDA1CMT0Y103
C322	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C331	ELECTROLYTIC CAP. 47µF/16V M or	CE1CMASTL470
	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C332	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C334	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C335	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CA1J104TU014
	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C341	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C342	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CA1J104TU014
	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C344	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C345	CERAMIC CAP.(AX) B K 0.015µF/50V	CA1J153TU011
C346	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C348	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASDLR10
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDL0R1
C351	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C353	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C354	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C355	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C356	ELECTROLYTIC CAP. 470µF/10V M or	CE1AMASTL471
	ELECTROLYTIC CAP. 470µF/10V M	CE1AMASDL471
C358	ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASTLR47
	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C371	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C372	CERAMIC CAP.(AX) SL J 47pF/50V	CCA1JJTSL470
C373	CERAMIC CAP.(AX) X K 1500pF/16V	CDA1CKT0X152
C374	ELECTROLYTIC CAP. 2.2µF/50V M LL or	CE1JMASLL2R2
	ELECTROLYTIC CAP. 2.2µF/50V LL	CE1JMASLH2R2
C381	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CA1J104TU014
	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C382	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C384	CERAMIC CAP.(AX) CH J 68pF/50V	CA1J680TU008
C385	ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASTLR47
	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47

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Ref. No.	Description	Part No.
C386	CERAMIC CAP.(AX) B K 0.047µF/50V	CA1J473TU011
C387	CERAMIC CAP.(AX) B K 0.047µF/50V	CA1J473TU011
C391	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CA1J104TU014
	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C401	FILM CAP.(P) 0.0047µF/50V J or	CMA1JJS00472
	FILM CAP.(P) 0.0047µF/50V J	CA1J472MS029
C402	MYLAR CAP. 0.22µF/50V J or	CMA1JJS00224
	FILM CAP.(P) 0.22µF/50V J	CA1J224MS029
C403	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C404	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASTLR10
	ELECTROLYTIC CAP. 0.1µF/50V M or	CE1JMASDLR10
	ELECTROLYTIC CAP. 0.1µF/50V M	CE1JMASDL0R1
C406	ELECTROLYTIC CAP. 47µF/16V M or	CE1CMASTL470
	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C408	CERAMIC CAP.(AX) F Z 0.1µF/50V or	CA1J104TU014
	CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZT0F104
C409	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C421	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C422	CERAMIC CAP.(AX) X K 5600pF/16V	CDA1CKT0X562
C423	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C424	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C431	ELECTROLYTIC CAP. 2.2µF/50V M or	CE1JMASTL2R2
	ELECTROLYTIC CAP. 2.2µF/50V M	CE1JMASDL2R2
C432	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C433	FILM CAP.(P) 0.0027µF/50V J or	CMA1JJS00272
	FILM CAP.(P) 0.0027µF/50V J	CA1J272MS029
C434	FILM CAP.(P) 0.1µF/50V J or	CMA1JJS00104
	FILM CAP.(P) 0.1µF/50V J	CA1J104MS029
C435	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C441	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C442	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C446	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C551	ELECTROLYTIC CAP. 47µF/35V M or	CE1GMASTL470
	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASDL470
C552	FILM CAP.(P) 0.1µF/50V J or	CMA1JJS00104
	FILM CAP.(P) 0.1µF/50V J	CA1J104MS029
C554	ELECTROLYTIC CAP. 470µF/35V M(VR) or	CE1GMZNTL471
	ELECTROLYTIC CAP. 470µF/35V M or	CE1GMZNDL471
	ELECTROLYTIC CAP. 470µF/35V M	CE1GMZADL471
C562	ELECTROLYTIC CAP. 2.2µF/50V M LL or	CE1JMASLL2R2
	ELECTROLYTIC CAP. 2.2µF/50V LL	CE1JMASLH2R2
C566	ELECTROLYTIC CAP. 1000µF/25V M or	CE1EMZNTL102
	ELECTROLYTIC CAP. 1000µF/25V M or	CE1EMZPDL102
	ELECTROLYTIC CAP. 1000µF/25V M	CE1EMZADL102
C568	ELECTROLYTIC CAP. 3.3µF/50V M or	CE1JMASTL3R3
	ELECTROLYTIC CAP. 3.3µF/50V M	CE1JMASDL3R3
C571⚠	PP CAP. 0.47µF/250V J or	CT2E474MS041
⚠	P.P.CAP 0.47µF/200 J	CA2D474VC012
C574⚠	ELECTROLYTIC CAP. 4.7µF/250V M	CE2EMASDL4R7
C577⚠	ELECTROLYTIC CAP. 47µF/35V M or	CE1GMASTL470
⚠	ELECTROLYTIC CAP. 47µF/35V M	CE1GMASDL470

Ref. No.	Description	Part No.
C578	FILM CAP.(P) 0.01µF/50V J or	CMA1JJS00103
	FILM CAP.(P) 0.01µF/50V J	CA1J103MS029
C580⚠	PP CAP. 0.01µF/1.6KV J or	CT3C103MS039
⚠	PP CAP. 0.01µF/1.6KV J or	CBH3CJQ00103
⚠	P.P.CAP 0.01µF/1.6KV J or	CA3C103VC011
⚠	METALLIZED FILM CAP. 0.01µF/1.6KV J	CT3C103F7002
C581⚠	CERAMIC CAP. LB 1000pF/2KV or	CA3D102KG004
⚠	CERAMIC CAP. BN 1000pF/2KV or	CCD3DKA0B102
⚠	CERAMIC CAP. 1000pF/2KV	CA3D102PAN04
C584⚠	ELECTROLYTIC CAP. 1µF/160V M or	CE2CMASTL1R0
⚠	ELECTROLYTIC CAP. 1µF/160V M	CE2CMASDL1R0
C594⚠	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
⚠	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C601⚠	METALLIZED FILM CAP. 0.1µF/250V or	CT2E104MS037
⚠	FILM CAP.(MP) 0.1µF/250V K or	CT2E104DC011
⚠	METALLIZED FILM CAP. 0.1µF/275V K	CT2E104HJE06
C605	CERAMIC CAP. F Z 0.01µF/500V or	CCD2JZP0F103
	CERAMIC CAP. 0.01µF/AC250V	CCD2EZA0F103
C606	CERAMIC CAP. F Z 0.01µF/500V or	CCD2JZP0F103
	CERAMIC CAP. 0.01µF/AC250V	CCD2EZA0F103
C609	CERAMIC CAP. B K 1000pF/2KV or	CCD3DKD0B102
	CERAMIC CAP. B K 1000pF/2KV or	CCD3DKP0B102
	CERAMIC CAP. B K 1000pF/2KV	CA3D102MR030
C610⚠	ELECTROLYTIC CAP. 220µF/200V or	CA2D221NC088
⚠	ELECTROLYTIC CAP. 220µF/200V SL X	CA2D221S6003
C611	FILM CAP.(P) 0.068µF/50V J or	CMA1JJS00683
	FILM CAP.(P) 0.068µF/50V J	CA1J683MS029
C614	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C616	FILM CAP.(P) 0.056µF/50V J or	CMA1JJS00563
	FILM CAP.(P) 0.056µF/50V J	CA1J563MS029
C617	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C622	CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
If C643 is 4700pF, then JS642 (PCB JUMPER) is used.		
C643⚠	SAFETY CAP. 4700pF/250V KX	CA2E472MR050
JS642	PCB JUMPER D0.6-P7.5	JW7.5T
If C642 is 0.01µF, then C643 is 0.01µF.		
C642⚠	SAFETY CAP. 10000pF/250V or	CCG2EMA0F103
⚠	SAFETY CAP. F M 0.01µF/250V or	CCG2EMP0F103
⚠	CERAMIC CAP. 0.01µF F CS	CCG2HMN0F103
C643⚠	SAFETY CAP. 10000pF/250V or	CCG2EMA0F103
⚠	SAFETY CAP. F M 0.01µF/250V or	CCG2EMP0F103
⚠	CERAMIC CAP. 0.01µF F CS	CCG2HMN0F103
C650	CERAMIC CAP. LB 220pF/2KV or	CA3D221KG004
	CERAMIC CAP. BN J 220pF/2KV or	CCD3DKA0B221
	CERAMIC CAP. 220pF/2KV	CA3D221PAN04
C651	CERAMIC CAP. LB 1000pF/2KV or	CA3D102KG004
	CERAMIC CAP. BN 1000pF/2KV or	CCD3DKA0B102
	CERAMIC CAP. 1000pF/2KV	CA3D102PAN04
C653⚠	ELECTROLYTIC CAP. 1000µF/16V M(VR/HC) or	CE1CMZNTL102
⚠	ELECTROLYTIC CAP. 1000µF/16V M or	CE1CMZPDL102
⚠	ELECTROLYTIC CAP. 1000µF/16V M	CE1CMZADL102
C654⚠	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
⚠	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
⚠	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C655⚠	ELECTROLYTIC CAP. 1000µF/16V M(VR/HC) or	CE1CMZNTL102
⚠	ELECTROLYTIC CAP. 1000µF/16V M or	CE1CMZPDL102
⚠	ELECTROLYTIC CAP. 1000µF/16V M	CE1CMZADL102
C656⚠	ELECTROLYTIC CAP. 100µF/160V M or	CE2CMZPTL101
⚠	ELECTROLYTIC CAP. 100µF/160V M	CE2CMZNDL101
C657	ELECTROLYTIC CAP. 1000µF/35V M or	CE1GMZNTL102
	ELECTROLYTIC CAP. 1000µF/35V M or	CE1GMZNDL102

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Ref. No.	Description	Part No.
	ELECTROLYTIC CAP. 1000µF/35V M	CE1GMZADL102
C667	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASTL1R0
	ELECTROLYTIC CAP. 1µF/50V M or	CE1JMASDL1R0
	ELECTROLYTIC CAP. 1µF/50V M	CE1JMASDL010
C681	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C682	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C683	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C686	ELECTROLYTIC CAP. 33µF/16V M or	CE1CMASTL330
	ELECTROLYTIC CAP. 33µF/16V M	CE1CMASDL330
C687	ELECTROLYTIC CAP. 100µF/10V M or	CE1AMASTL101
	ELECTROLYTIC CAP. 100µF/10V M	CE1AMASDL101
C692	ELECTROLYTIC CAP. 100µF/160V M or	CE2CMZPTL101
	ELECTROLYTIC CAP. 100µF/160V M	CE2CMZNDL101
C702	CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C703	PCB JUMPER D0.6-P5.0	JW5.0T
C712	ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASTLR47
	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C713	CERAMIC CAP.(AX) X K 1500pF/16V	CDA1CKT0X152
C722	ELECTROLYTIC CAP. 0.47µF/50V M or	CE1JMASTLR47
	ELECTROLYTIC CAP. 0.47µF/50V M	CE1JMASDLR47
C723	CERAMIC CAP.(AX) X K 1500pF/16V	CDA1CKT0X152
C801	ELECTROLYTIC CAP. 220µF/16V M or	CE1CMASTL221
	ELECTROLYTIC CAP. 220µF/16V M	CE1CMASDL221
C802	ELECTROLYTIC CAP. 220µF/16V M or	CE1CMASTL221
	ELECTROLYTIC CAP. 220µF/16V M	CE1CMASDL221
C806	FILM CAP.(P) 0.1µF/50V J or	CMA1JJS00104
	FILM CAP.(P) 0.1µF/50V J	CA1J104MS029
C807	FILM CAP.(P) 0.1µF/50V J or	CMA1JJS00104
	FILM CAP.(P) 0.1µF/50V J	CA1J104MS029
C808	PCB JUMPER D0.6-P5.0	JW5.0T
C809	PCB JUMPER D0.6-P5.0	JW5.0T
C811	ELECTROLYTIC CAP. 470µF/16V M or	CE1CMASTL471
	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C812	ELECTROLYTIC CAP. 47µF/16V M or	CE1CMASTL470
	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C813	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C815	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C817	ELECTROLYTIC CAP. 4.7µF/50V M or	CE1JMASTL4R7
	ELECTROLYTIC CAP. 4.7µF/50V M	CE1JMASDL4R7
C821	ELECTROLYTIC CAP. 470µF/16V M or	CE1CMASTL471
	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
C822	ELECTROLYTIC CAP. 47µF/16V M or	CE1CMASTL470
	ELECTROLYTIC CAP. 47µF/16V M	CE1CMASDL470
C823	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C825	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C833	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C838	ELECTROLYTIC CAP. 10µF/50V M or	CE1JMASTL100
	ELECTROLYTIC CAP. 10µF/50V M	CE1JMASDL100
C841	CERAMIC CAP.(AX) F Z 0.01µF/25V	CDA1EZT0F103
C842	ELECTROLYTIC CAP. 470µF/16V M or	CE1CMASTL471
	ELECTROLYTIC CAP. 470µF/16V M	CE1CMASDL471
CONNECTORS		
CN301	CONNECTOR BASE, 5P TUC-P05P-B1	J3TUA05TG001
CN571	CONNECTOR BASE, 5P TV-50P-05-V3 or	J3TVC05TG002
	CONNECTOR BASE, 5P RTB-1.5-5P	J3RTC05JG001
CN691	CONNECTOR BASE, 2P TV-50P-02-V3 or	J3TVC02TG002
	CONNECTOR BASE, 2P RTB-1.5-2P	J3RTC02JG001
CN801	STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 or	J383C02UG002
	STRAIGHT PIN HEADER, 2P 173981-2	1770258
CN802	STRAIGHT CONNECTOR BASE 00 8283 0212 00 000 or	J383C02UG002
	STRAIGHT PIN HEADER, 2P 173981-2	1770258
DIODES		
D125	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D126⚠	ZENER DIODE MTZJT-775.1B or	QDTB0MTZJ5R1
⚠	ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D132⚠	ZENER DIODE MTZJT-775.1B or	QDTB0MTZJ5R1
⚠	ZENER DIODE DZ-5.1BSBT265	NDTB0DZ5R1BS
D141	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D181⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
D301	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D306	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D307	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D314	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D315	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D316	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D321	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D328	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D352	ZENER DIODE MTZJT-779.1B or	QDTB0MTZJ9R1
	ZENER DIODE DZ-9.1BSBT265	NDTB0DZ9R1BS
D353	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D381	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D391	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D551	DIODE 1N5397-B or	NDLZ001N5397
	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D568⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
D569⚠	ZENER DIODE MTZJT-7720B or	QDTB00MTZJ20
⚠	ZENER DIODE DZ-20BSBT265	NDTB00DZ20BS
D571	DIODE FR104-B or	NDLZ000FR104
	RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
	RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D572⚠	DIODE FR104-B or	NDLZ000FR104
⚠	RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
⚠	RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D573⚠	DIODE FR104-B or	NDLZ000FR104
⚠	RECTIFIER DIODE ERA22-02 or	QDPZ0ERA2202
⚠	RECTIFIER DIODE 10ELS2	QDQZ0010ELS2
D584⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148

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Ref. No.	Description	Part No.
D593⚠	ZENER DIODE MTZJT-7736B or	QDTB00MTZJ36
⚠	ZENER DIODE DZ-36BSBT265	NDTB00DZ36BS
D595	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D597	ZENER DIODE MTZJT-776.8B or	QDTB0MTZJ6R8
	ZENER DIODE DZ-6.8BSBT265	NDTB0DZ6R8BS
D605⚠	DIODE 1N5397-B or	NDLZ001N5397
⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D606⚠	DIODE 1N5397-B or	NDLZ001N5397
⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D607⚠	DIODE 1N5397-B or	NDLZ001N5397
⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D608⚠	DIODE 1N5397-B or	NDLZ001N5397
⚠	RECTIFIER DIODE ERB12-06	QDQZ0ERB1206
D611⚠	ZENER DIODE MTZJT-7715B or	QDTB00MTZJ15
⚠	ZENER DIODE DZ-15BSBT265	NDTB00DZ15BS
D613⚠	ZENER DIODE MTZJT-7715B or	QDTB00MTZJ15
⚠	ZENER DIODE DZ-15BSBT265	NDTB00DZ15BS
D615⚠	SWITCHING DIODE 1N4148 T-77	QDTZ001N4148
D621	ZENER DIODE DZ-3.0BSBT265	NDTB0DZ3R0BS
D622	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D641	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
D642	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D651⚠	FAST RECOVERY DIODE CA201-4 or	QDWZ00CA2014
⚠	RECOVERY DIODE ERC18-04 or	QDZZ0ERC1804
⚠	FAST RECOVERY DIODE ERC25-06	QDQZ0ERC2506
D652⚠	DIODE FR154 or	NDLZ000FR154
⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D653⚠	DIODE FR154 or	NDLZ000FR154
⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D654⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
D655⚠	DIODE FR154 or	NDLZ000FR154
⚠	FAST RECOVERY DIODE ERB44-02	QDPZ0ERB4402
D657⚠	DIODE 1ZC36 or	QDQZ0001ZC36
⚠	ZENER DIODE RD39FB	QDQZ000RD39F
D660	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D661⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
D662⚠	ZENER DIODE MTZJT-776.8B or	QDTB0MTZJ6R8
⚠	ZENER DIODE DZ-6.8BSBT265	NDTB0DZ6R8BS
D666	ZENER DIODE MTZJT-7736B or	QDTB00MTZJ36
	ZENER DIODE DZ-36BSBT265	NDTB00DZ36BS
D671⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
D672	PCB JUMPER D0.6-P5.0	JW5.0T
D673	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D681	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
D682⚠	ZENER DIODE MTZJT-775.6B or	QDTB0MTZJ5R6
⚠	ZENER DIODE DZ-5.6BSBT265	NDTB0DZ5R6BS
D691⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
D696	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D697⚠	PCB JUMPER D0.6-P5.0	JW5.0T
D811	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148

Ref. No.	Description	Part No.
D821	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D826	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
	SWITCHING DIODE 1N4148	NDTZ001N4148
D838	ZENER DIODE MTZJT-7710B or	QDTB00MTZJ10
	ZENER DIODE DZ-10BSBT265	NDTB00DZ10BS
D841⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
D845⚠	SWITCHING DIODE 1SS133(T-77) or	QDTZ001SS133
⚠	SWITCHING DIODE 1N4148	NDTZ001N4148
ICS		
IC111⚠	IC M37150M8-053FP	QSZAB0SMB088
IC151	IC:MEMORY AT24C01A-10SC or	NSMMA0SAZ011
	IC(EEPROM) M24C01-MN6 or	NSMMA0SSS027
	IC:MEMORY BR24C01AF-W or	QSMBA0SRM002
	IC:MEMORY BR24C01AF or	QSMMA0SRM002
	IC:MEMORY S524C20D21 or	NSZBA0SSM028
	IC:EEPROM CAT24WC02JI	NSZBA0SBG001
IC333⚠	IC:CHROMA/IF 1 CHIP M61210FP-R62*	QSZAC0RMB086
IC401	IC:USA STEREO DECODER LA7765	QSZBA0SSY003
IC551⚠	VERTICAL OUTPUT IC LA78040A or	QSBBA0SSY003
⚠	VERTICAL OUTPUT IC AN5522	QSZBA0SMS002
IC601⚠	PHOTOCOUPLER LTV-817B-F or	NPEB0LTV817F
⚠	PHOTOCOUPLER LTV-817C-F	NPEC0LTV817F
IC801	IC:AF POWER AMP LA4285	QSZBA0SSY002
IC802	IC:AF POWER AMP LA4285	QSZBA0SSY002
COILS		
L5	INDUCTOR 22μH-K-5FT or	LLARKBSTU220
	INDUCTOR 22μH-K	LLARKDQKA220
L11	PCB JUMPER D0.6-P5.0	JW5.0T
L15	INDUCTOR 1.2μH-J-26T or	LLAXJATTU1R2
	INDUCTOR 1.2μH-K-26T	LLAXKDTKA1R2
L121	INDUCTOR 22μH-K-5FT or	LLARKBSTU220
	INDUCTOR 22μH-K	LLARKDQKA220
L302	PCB JUMPER D0.6-P5.0	JW5.0T
L351	INDUCTOR 100μH-K-5FT or	LLARKBSTU101
	INDUCTOR 100μH-K	LLARKDQKA101
L356	INDUCTOR 12μH-J-26T or	LLAXJATTU120
	INDUCTOR 12μH-K-26T	LLAXKDTKA120
L371	INDUCTOR 15μH-J-26T or	LLAXJATTU150
	INDUCTOR 15μH-K-26T	LLAXKDTKA150
L383	CARBON RES. 1/4W J 82 Ω or	RCX4JATZ0820
	CARBON RES. 1/6W J 82 Ω	RCX6JATZ0820
L601⚠	LINE FILTER TLF12UA302W1R0 or	LLBG00ZTU025
⚠	LINE FILTER 5.0MH 6Y075 or	LLBG00ZKT004
⚠	LINE FILTER LF005 or	LLBG00ZLH001
⚠	LINE FILTER UU10.5-A or	LLBG00ZY2008
⚠	LINE FILTER SA-91213B or	LLBG00ZSA002
⚠	LINE FILTER TLF14CB3321R0 or	LLBG00ZTU012
⚠	LINE FILTER 6.35MH UU10-002	LLBG00ZKV001
L692	CHOKE COIL 47μH-K or	LLBD00PKV007
	POT COIL 47μH K	LLBD**DMM001
TRANSISTORS		
Q121	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q351	TRANSISTOR 2SC2785(F) or	QQSF02SC2785

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Ref. No.	Description	Part No.
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q377	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q411	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q441	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
	TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q571⚠	TRANSISTOR 2SD2627LS-FEC-YB11 or	QQZZ02SD2627
⚠	TRANSISTOR 2SD2629-YB or	QQZZ02SD2629
⚠	TRANSISTOR TT2140LS-YB11	QQZZ00TT2140
Q572	TRANSISTOR 2SC1627Y-TPE2	QQSY02SC1627
Q601⚠	MOS FET 2SK2662	QF5Z02SK2662
Q602⚠	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
⚠	TRANSISTOR 2SC2120-Y(TPE2)	QQSY02SC2120
Q662⚠	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
⚠	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
⚠	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
⚠	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
⚠	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q671⚠	TRANSISTOR 2SA1175(F) or	QQSF02SA1175
⚠	TRANSISTOR KTA1267(GR) or	NQS10KTA1267
⚠	TRANSISTOR KTA1266(GR) or	NQS40KTA1266
⚠	TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q675	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q676	RES. BUILT-IN TRANSISTOR BA1F4M-T or	QQSZ00BA1F4M
	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q681	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
	TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q682	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
	TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q683	TRANSISTOR 2SC2120-O-TPE2 or	QQS002SC2120
	TRANSISTOR 2SC2120-Y(TPE2) or	QQSY02SC2120
	TRANSISTOR KTC3203(Y)	NQSY0KTC3203
Q696	RES. BUILT-IN TRANSISTOR BA1F4M-T or	QQSZ00BA1F4M
	RES. BUILT-IN TRANSISTOR KRC103M	NQSZ0KRC103M
Q825	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815

Ref. No.	Description	Part No.
Q831	TRANSISTOR 2SB892(S) or	QQSS002SB892
	TRANSISTOR 2SB892(T)	QQST002SB892
Q832⚠	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
⚠	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
⚠	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
⚠	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
⚠	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q833⚠	TRANSISTOR 2SC2785(F) or	QQSF02SC2785
⚠	TRANSISTOR 2SC2785(H) or	QQSH02SC2785
⚠	TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
⚠	TRANSISTOR KTC3199(GR) or	NQS10KTC3199
⚠	TRANSISTOR KTC3198(GR) or	NQS40KTC3198
⚠	TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
	RESISTORS	
R11	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R12	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R102	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R103	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R104	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R105	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R106	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R107	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R108	PCB JUMPER D0.6-P5.0	JW5.0T
R109	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R110	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R111	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R121	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R122	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R123	CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R125⚠	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
⚠	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R126⚠	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R127⚠	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R128⚠	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
⚠	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R129⚠	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R132⚠	PCB JUMPER D0.6-P5.0	JW5.0T
R151	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R152	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R153	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R155	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R156	PCB JUMPER D0.6-P5.0	JW5.0T
R157	PCB JUMPER D0.6-P5.0	JW5.0T
R161	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R162	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R171	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R305	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R306	CARBON RES. 1/4W J 82k Ω	RCX4JATZ0823
R308	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R309	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R310	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103

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Ref. No.	Description	Part No.
R311	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R314	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R315	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R316	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R317	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R318	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R319	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R322	CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R323	PCB JUMPER D0.6-P5.0	JW5.0T
R324	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R328	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R329	PCB JUMPER D0.6-P5.0	JW5.0T
R331	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R333	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R336	CARBON RES. 1/4W J 270k Ω	RCX4JATZ0274
R337	PCB JUMPER D0.6-P5.0	JW5.0T
R341	CARBON RES. 1/4W J 270k Ω	RCX4JATZ0274
R342	CARBON RES. 1/4W J 150k Ω	RCX4JATZ0154
R343	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R346	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R348	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R353	PCB JUMPER D0.6-P5.0	JW5.0T
R354	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R355	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R358	PCB JUMPER D0.6-P5.0	JW5.0T
R373	CARBON RES. 1/4W J 47 Ω or	RCX4JATZ0470
	CARBON RES. 1/6W J 47 Ω	RCX6JATZ0470
R374	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R377	CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
	CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R378	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R383	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R384	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R391	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R392	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R393	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R394	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R403	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R404	PCB JUMPER D0.6-P5.0	JW5.0T
R405	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R406	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R407	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R408	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R409	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R412	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R421	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R422	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222

Ref. No.	Description	Part No.
R432	CARBON RES. 1/4W J 220 Ω or	RCX4JATZ0221
	CARBON RES. 1/6W J 220 Ω	RCX6JATZ0221
R435	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R436	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R441	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R442	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R443	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R445	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R551	CARBON RES. 1/4W J 4.7 Ω or	RCX4JATZ04R7
	CARBON RES. 1/6W J 4.7 Ω	RCX6JATZ04R7
R555⚠	METAL OXIDE FILM RES. 2W J 5.6 Ω or	RN025R6ZU001
⚠	METAL OXIDE FILM RES. 2W J 5.6 Ω	RN025R6DP004
R556	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R557	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R558	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R559	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R561	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R562	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R563	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R564	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R566	CARBON RES. 1/4W J 3.3 Ω or	RCX4JATZ03R3
	CARBON RES. 1/6W J 3.3 Ω	RCX6JATZ03R3
R567	CARBON RES. 1/4W J 3.3 Ω or	RCX4JATZ03R3
	CARBON RES. 1/6W J 3.3 Ω	RCX6JATZ03R3
R569⚠	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R571⚠	METAL OXIDE FILM RES. 2W J 1.5k Ω or	RN02152ZU001
⚠	METAL OXIDE FILM RES. 2W J 1.5k Ω	RN02152DP004
R572⚠	METAL OXIDE FILM RES. 2W J 470 Ω or	RN02471ZU001
⚠	METAL OXIDE FILM RES. 2W J 470 Ω	RN02471DP004
R575⚠	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
⚠	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R576⚠	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
⚠	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R577⚠	CARBON RES. 1/4W J 15 Ω or	RCX4JATZ0150
⚠	CARBON RES. 1/6W J 15 Ω	RCX6JATZ0150
R578	CARBON RES. 1/4W J 560 Ω or	RCX4JATZ0561
	CARBON RES. 1/6W J 560 Ω	RCX6JATZ0561
R579	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R581	PCB JUMPER D0.6-P5.0	JW5.0T
R583⚠	METAL OXIDE FILM RES. 2W J 2.7 Ω or	RN02JZLZ02R7
⚠	METAL OXIDE RESISTOR 2W 2.7 Ω(J)	RN02JZPZ02R7
R584⚠	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
⚠	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R588⚠	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R589	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R591⚠	CARBON RES. 1/4W J 180k Ω	RCX4JATZ0184
R592⚠	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R593⚠	CARBON RES. 1/4W J 68k Ω	RCX4JATZ0683
R594⚠	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R595	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R597	CARBON RES. 1/4W J 8.2k Ω	RCX4JATZ0822
R598⚠	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R599⚠	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R601⚠	CEMENT RES. 5W K 1.2 Ω or	RW051R2DP005
⚠	CEMENT RESISTOR 5W K 1.2 Ω or	RW051R2PG001

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Ref. No.	Description	Part No.
⚠	CEMENT RESISTOR 5W J 1.2 Ω or	RW051R2Y4001
⚠	CEMENT RES. 3W K 1.2 Ω	RW031R2PG007
R602	CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R603	CARBON RES. 1/4W J 820k Ω	RCX4JATZ0824
R611	CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
	CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R612	CARBON RES. 1/4W J 270 Ω or	RCX4JATZ0271
	CARBON RES. 1/6W J 270 Ω	RCX6JATZ0271
R613⚠	METAL OXIDE FILM RES. 2W J 0.33 Ω or	RN02JZLZ0R33
⚠	METAL RES 2W J 0.33 Ω	RN02JZPZ0R33
R614	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R616	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R621	CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R622	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R623	CARBON RES. 1/4W J 330 Ω or	RCX4JATZ0331
	CARBON RES. 1/6W J 330 Ω	RCX6JATZ0331
R624	PCB JUMPER D0.6-P5.0	JW5.0T
R653	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R654⚠	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R655⚠	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
⚠	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R656⚠	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R657⚠	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R660	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R661⚠	CARBON RES. 1/4W J 220k Ω	RCX4JATZ0224
R662⚠	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R664	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R665⚠	CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R666⚠	METAL OXIDE FILM RES. 2W J 15k Ω or	RN02153ZU001
⚠	METAL OXIDE FILM RES. 2W J 15k Ω	RN02153DP004
R667⚠	PCB JUMPER D0.6-P5.0	JW5.0T
R668⚠	METAL OXIDE FILM RES. 1W J 56k Ω or	RN01563ZU001
⚠	METAL OXIDE FILM RES. 1W J 56k Ω	RN01563DP003
R669	CARBON RES. 1/4W J 47k Ω	RCX4JATZ0473
R671	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R672	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R673	CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R676	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R681⚠	CARBON RES. 1/4W J 12 Ω or	RCX4JATZ0120
⚠	CARBON RES. 1/6W J 12 Ω	RCX6JATZ0120
R682⚠	METAL OXIDE FILM RES. 1W J 33 Ω or	RN01330ZU001
⚠	METAL OXIDE FILM RES. 1W J 33 Ω	RN01330DP003
R683⚠	METAL OXIDE FILM RES. 1W J 39 Ω or	RN01390ZU001
⚠	METAL OXIDE FILM RES. 1W J 39 Ω	RN01390DP003
R686	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R687	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R691⚠	CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R696	CARBON RES. 1/4W J 10 Ω or	RCX4JATZ0100
	CARBON RES. 1/6W J 10 Ω	RCX6JATZ0100
R701	PCB JUMPER D0.6-P5.0	JW5.0T
R702	CARBON RES. 1/4W J 75 Ω or	RCX4JATZ0750
	CARBON RES. 1/6W J 75 Ω	RCX6JATZ0750
R712	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R715	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R722	CARBON RES. 1/4W J 12k Ω	RCX4JATZ0123
R725	CARBON RES. 1/4W J 39k Ω	RCX4JATZ0393
R734	CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272

Ref. No.	Description	Part No.
R801	CARBON RES. 1/2W J 100 Ω or	RCX2JZQZ0101
	CARBON RES. 1/2W J 100 Ω	RCX2JZPZ0101
R802	CARBON RES. 1/2W J 100 Ω or	RCX2JZQZ0101
	CARBON RES. 1/2W J 100 Ω	RCX2JZPZ0101
R806	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R807	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R813	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R817	CARBON RES. 1/4W J 3.3k Ω	RCX4JATZ0332
R818	CARBON RES. 1/4W J 56k Ω	RCX4JATZ0563
R823	CARBON RES. 1/4W J 100 Ω or	RCX4JATZ0101
	CARBON RES. 1/6W J 100 Ω	RCX6JATZ0101
R825	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R826	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R828	CARBON RES. 1/4W J 6.8k Ω	RCX4JATZ0682
R831	PCB JUMPER D0.6-P5.0	JW5.0T
R832	CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R833	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R834	PCB JUMPER D0.6-P5.0	JW5.0T
R835	CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R836⚠	METAL OXIDE FILM RES. 2W J 3.3 Ω or	RN023R3ZU001
⚠	METAL OXIDE FILM RES. 2W J 3.3 Ω	RN023R3DP004
R837⚠	PCB JUMPER D0.6-P5.0	JW5.0T
R838	CARBON RES. 1/4W J 1k Ω or	RCX4JATZ0102
	CARBON RES. 1/6W J 1k Ω	RCX6JATZ0102
R841⚠	METAL OXIDE FILM RES. 2W J 3.9 Ω or	RN023R9ZU001
⚠	METAL OXIDE FILM RES. 2W J 3.9 Ω	RN023R9DP004
R842	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R843	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R844	METAL OXIDE FILM RES. 2W J 3.9 Ω or	RN023R9ZU001
	METAL OXIDE FILM RES. 2W J 3.9 Ω	RN023R9DP004
R845⚠	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
R846⚠	CARBON RES. 1/4W J 2.2k Ω	RCX4JATZ0222
SWITCHES		
SW101	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKHHAM	SST0101AL029
SW102	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKHHAM	SST0101AL029
SW103	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKHHAM	SST0101AL029
SW104	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKHHAM	SST0101AL029
SW105	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKHHAM	SST0101AL029
SW106	TACT SWITCH SKQSAB or	SST0101AL038
	TACT SWITCH KSM0612B or	SST0101HH003
	TACT SWITCH SKHHAM	SST0101AL029
MISCELLANEOUS		
AC601⚠	AC CORD LA-2413	WAC0172LW007
B-6	HEAT SINK(PGA) L6100UZ	0EM406787
B-7	HEAT SINK(PFZ) L6100UZ	0EM406786
B-10	JACK HOLDER L9304UZ	0EM404325
B-12	CLOTH(65) L7735TR:65X10X0.5T	0EM402149

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Ref. No.	Description	Part No.
BC101	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC102	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC571	BEAD INDUCTORS FBA04HA600VB-00	LLBF00STU026
BC601	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC602	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC650	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC651	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC652	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC691	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
BC692	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021
CF301	CERAMIC TRAP 4.5MHz or	FBE455PMR003
	CERAMIC TRAP 4.5MHz	FBE455PMS002
CF302	CERAMIC FILTER SFSRA4M50CF00-B0 or	FBB455PMR004
	CERAMIC FILTER 4.5MHz	FBB455PMS001
CLN301	WIRE ASSEMBLY WX1L1100-102	WX1L1100-102
F601⚠	FUSE 4A/125V 237 TYPE or	PAGJ20CAG402
⚠	FUSE STC4A125V U/CT or	PAGE20CW3402
⚠	FUSE 4.00A/125V	PAGG20CNG402
FH601	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078	XH01Z00DK001
FH602	FUSE HOLDER MSF-015 or	XH01Z00LY001
	FUSE HOLDER FH-V-03078	XH01Z00DK001
GP641⚠	GAP. FNR-G3.10D	FAZ000LD6005
JK701	RCA JACK 1P AV-8.4-9Y	JXRL010RP010
JK702	RCA JACK 1P AV-8.4-9R	JXRL010RP006
JK703	RCA JACK 1P AV-8.4-9W	JXRL010RP011
JK801	HEADPHONE JACK MSJ-035-10A B	JYSL020LY002
JS831	PCB JUMPER D0.6-P12.5	JW12.5T
JS851	PCB JUMPER D0.6-P5.0	JW5.0T
JS852	PCB JUMPER D0.6-P5.0	JW5.0T
L-1	SCREW, B-TIGHT M3X8 BIND HEAD+ or	GBMB3080
	SCREW, B-TIGHT M3X8 BIND HEAD+	GBMB3080
PS691⚠	THERMISTOR ZPB45BL7R0A	QNZZ45BL7R0A
RCV101	REMOCON RECEIVE UNIT MIM-93M8DKL or	USESJRSUNT02
	REMOCON RECEIVE UNIT PIC-26042SR-2 or	USESJRSKK032
	REMOCON RECEIVE UNIT PIC-37042SR	USESJRSKK034
RL601⚠	POWER RELAY SDT-S-112LMR or	MRNDC12QN014
⚠	POWER RELAY RPEF-12-901	MRNDC12KB002
SF1	SAW FILTER SAFGM45M7VHGZM0B03	FBB456PMR007
T571⚠	FLYBACK TRANSFORMER JF0501-2419 or	LTF00CPXB027
⚠	FLYBACK TRANS BSC21-2047S or	LTF00CPS2050
⚠	FLYBACK TRANS BSC25-0243 or	LTF00CPP1008
⚠	FLYBACK TRANS FNI20A001	LTF00CPSM019
T572	H0RIZONTAL DRIVE TRANS LP2-004	LTH00CPA5004
T601⚠	SWITCHING TRANS 1721 or	LTT00CPKT075
⚠	SWITCHING TRANS SA-00610A	LTT00CPSA095
TP300	PCB JUMPER D0.6-P12.5	JW12.5T
TP301	PCB JUMPER D0.6-P10.0	JW10.0T
TP601	PCB JUMPER D0.6-P10.0	JW10.0T
TU1	TUNER ENV56DB3G3 or	UTUNNTUMS009
	TUNER B8095AP or	UTUNNTUSP018
	TUNER UNIT TEDH9-309A	UTUNNTUAL031
VR661	CARBON P.O.T. 50k Ω B or	VRCB503KA011
	CARBON P.O.T. 50k Ω B	VRCB503HH014
X344	X'TAL 3.579545 MHz or	FXD355LLN003
	X'TAL 3.579545MHz(30PPM)	FXD355LCHE01
X441	CERAMIC RESONATOR ZTB378F2 or	FY0374PLN001
	CERAMIC RESONATOR CSB378F2	FY0374PMR001

CRT CBA

Ref. No.	Description	Part No.
	CRT CBA Consists of the following	----------
	CAPACITORS	
C501	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C502	CERAMIC CAP.(AX) B K 270pF/50V	CCA1JKT0B271
C503	CERAMIC CAP.(AX) B K 330pF/50V	CCA1JKT0B331
C504	ELECTROLYTIC CAP. 47μF/16V M or	CE1CMASTL470
	ELECTROLYTIC CAP. 47μF/16V M	CE1CMASDL470
C510	CERAMIC CAP. B K 1000pF/2KV or	CCD3DKD0B102
	CERAMIC CAP. B K 1000pF/2KV or	CCD3DKP0B102
	CERAMIC CAP. B K 1000pF/2KV	CA3D102MR030
	CONNECTOR	
CN501	PIN CONNECTOR 005P-5100	JTEA001TG001
	COILS	
L501	INDUCTOR 180μH-J-5FT or	LLARJCSTU181
	INDUCTOR 180μH-K-5FT	LLARKDSKA181
	TRANSISTORS	
Q501	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR KTC3207	NQSZ0KTC3207
Q502	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR KTC3207	NQSZ0KTC3207
Q503	TRANSISTOR 2SC2482 TPE6 or	QQSZ02SC2482
	TRANSISTOR 2SC3468(E)-AE or	QQSE02SC3468
	TRANSISTOR 2SC3468(D)-AE or	QQSD02SC3468
	TRANSISTOR KTC3207	NQSZ0KTC3207
	RESISTORS	
R501	METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153ZU001
	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153DP003
R502	METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153ZU001
	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153DP003
R503	METAL OXIDE FILM RES. 1W J 15k Ω or	RN01153ZU001
	METAL OXIDE FILM RES. 1W J 15k Ω	RN01153DP003
R504	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R505	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R506	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R509	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R511	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
	CARBON RES. 1/6W J 33 Ω	RCX6JATZ0330
R512	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
	CARBON RES. 1/6W J 33 Ω	RCX6JATZ0330
R513	CARBON RES. 1/4W J 33 Ω or	RCX4JATZ0330
	CARBON RES. 1/6W J 33 Ω	RCX6JATZ0330
R514	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R515	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R516	CARBON RES. 1/4W J 5.6k Ω	RCX4JATZ0562
R517	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R518	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R519	CARBON RES. 1/4W J 470 Ω or	RCX4JATZ0471
	CARBON RES. 1/6W J 470 Ω	RCX6JATZ0471
R537	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
R538	CARBON RES. 1/4W J 1.5k Ω	RCX4JATZ0152
	MISCELLANEOUS	
BC501	BEAD INDUCTORS FBR07HA121TB-00	LLBF00ZTU021

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Ref. No.	Description	Part No.
CLN501	PARALLEL WIRE 3P	WX1L1114-101
JK501⚠	CRT SOCKET ISMS02S	JSCC220PK003

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